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10-lb. Friction-top pails	1.20	4.00	7.90	38.00

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	100	500	1000
2½-lb. Friction-top cans	$2.80	$12.75	$25.25
5-lb. Friction-top pails	4.95	22.25	44.00
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Caps, 1¾ in. With 2½-inch caps, add 1 cent each can.

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Cases, 2 Cans Each

10 cases	$ 9.00
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100 cases	84.00

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No flimsy goods. The best made.

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10 cases	$ 8.50	50 cans	$14.00
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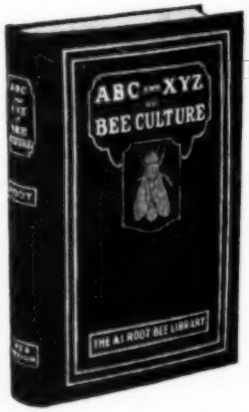

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Honey Markets

Information from Producing Areas (First Half of August)

California Points: Southern California—Nectar-bearing plants are pretty well dried up, though a light flow is on from buckwheat, sumac and alfalfa. Lima beans have been yielding well and some colonies along the coast need this flow to winter on. The alfalfa crop in the Imperial Valley may not be more than half of normal. The buckwheat-sage flow is even lighter than at first anticipated. Buyers have been active, with speculative demand exceptionally good for light to extra light amber honey. Little export inquiry. Sales by beekeepers reported as follows, in ton lots or more, per lb.: Buckwheat-sage, extra light amber, 4-4¼c; light amber, 3¾-4c; buckwheat, extra light amber and 1 car light amber, 4c; sage, white, 4½c; extra light amber, 4-4⅛c; orange, very few sales white to extra white, 5-5¾c, with many holding for higher prices; Imperial Valley light amber alfalfa, 3¼-3⅝c per lb. Beeswax is holding firm with rather light trading at 12-14c per lb. delivered Los Angeles. Central California—Extracting of alfalfa honey is now on in the San Joaquin Valley, with a light crop being secured, though the flow is unusually spotted this year. Cotton flow is also light. Blue curl is blooming on the high mountain slopes and yarrow along the coast. Many bees died during the recent heat wave and most colonies will need new queens. Sales reported, per lb., light amber buckwheat, 4c; alfalfa, light amber, 3¼-3¾c; extra light amber, 3¾-4c; white sage, 5⅛c; white orange, 4¾-5c; light amber mixed, 2⅜c per lb. Northern California—Thistle plants are drying up rapidly, after the shortest flow in years. However, along irrigation ditches, railroad tracks, swales, etc., thistle plants are abundant and furnishing nectar generously, though bees are often too weak to take full advantage of the flow. The honey flow from alfalfa was short in the Sacramento Valley. Demand for honey has been good, but supplies have been light. One car light amber alfalfa sold at 3½c per lb.; small pails, 7-8c. Beeswax is firm at 12-13c per lb.

Pacific Northwest: West of Cascades—The fireweed flow is reported far better than anticipated earlier and may be the heaviest since 1929. Much of the fireweed flow is not being utilized, as many large commercial beekeepers this year moved their bees from fireweed locations following several years of fireweed failure. The quality of this fireweed flow is especially high and it is practically colorless. White clover, alsike and thistle are still yielding lightly. Few sales reported of white alfalfa in 60s and small pails at 7c per lb., some small pails low as 5c. Comb honey reported sold at 3.00 per case.

Intermountain Region—The crop will be light on the whole, which will strengthen the market for local sales and for outside shipment. Sales reported, 2 cars white sweet clover and alfalfa, 4½c per lb.; 60s and larger, 5-6c per lb.; small pails, 7-8c; extra light amber, 60s, 5c; small pails, 6c per lb. No. 1 comb has sold lightly at $2.00 per case. Few sales up to $2.50.

Arizona—After a rather poor spring, bees have now made a good crop of alfalfa honey and a heavy crop of mesquite honey, though the fall flow is expected to be light. Some desert apiaries are gathering a little from creosote bush and other scanty sources, but are not making any surplus. Sales reported of light amber alfalfa, Yuma District, $3.90-4.10 per case of 120 lbs.; Phoenix District, $4.00-4.20 per case; white mesquite, $4.50-4.75 per case, with much being sold at $5.00.

Plains Area: Red River Valley of North Dakota and Minnesota—The honey flow is tapering off rapidly and unless rain falls soon the season is about over. Scale colonies are gaining scarcely a pound a day instead of the normal 10 pounds or more. In the southern part of the Valley colonies are barely making a living, but a good crop was secured in the northern part of the Valley. The quality is reported fine. Sales reported white extracted, large lots, 4½-5c per lb. South Dakota—Hot winds have cut off the nectar flow from sweet clover. Current market prices are slightly above last year's. Sales reported white extracted, small pails, 8c per lb. Yellow beeswax, 15c per lb.; white comb, $2.25 per case. Iowa and Nebraska—The rain of a month ago put clover plants in good shape again and the honey crop appears normal or higher, with the quality better than the average. The flow is spotted, however, and many beekeepers have a below-average crop. Hubam and heartsease are beginning to bloom and furnish nectar. Demand is better; prices are higher than those of last year; and inquiries for honey are being made earlier than usual. Sales reported of 2 cars white at 4c per lb.; other large lots, 5c; small pails, 7-8c per lb. Kansas and Missouri—The crop is spotted but averages normal and some yards are still gathering honey from alfalfa and sweet clover. Demand is reported unusually good. White extracted, few 60s, 7c per lb.; small pails, 10c; light amber, small pails, old crop, 5¼c per lb. Dark beeswax, 15c per lb.

East Central and North Central States: Michigan, Wisconsin and Minnesota—Rainfall has been spotted and the honey crop is spotted in the same way, locations having rain securing a fairly good crop. In many cases, however, the severe drouth has cut down the honey crop sharply, with northern Minnesota and Wiscon-

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QUEENS, 25c EACH

WALTER T. KELLEY Young, 1933, laying, 3-banded Italians, guaranteed to please you.

Gulf Coast Bee Co., Houma, La.

sin and the southern Michigan border perhaps hit worse than the rest of this area. Recent rainfall has been helpful to the buckwheat and goldenrod prospects and will be beneficial to next year's clover plants. Yields of white honey reported to range from 25 to 200 pounds per colony. Large buyers have been making active inquiries at 4¼-5c per lb. for large lots, but many beekeepers say they are holding for 6c. Few sales reported white extracted, 60s or more, 6½-7c per lb., with few ton lots 4½-5c per lb.; small pails, 6-8c. Well-filled comb honey is scarce. Occasional sales No. 1 white comb, $2.40-3.25; fancy, $3.60 per case. Beeswax, 15c per lb. Ohio, Indiana and Illinois—Buyers have been unusually active in endeavoring to contract for future delivery, but it is said that most beekeepers are declining to sell at less than 6c per lb. in large lots. Few sales reported white extracted ton lots, 4½-6½c; few 7c; **60s, 7-8c per lb.; amber, ton lots, 4c**; 60s, 6c per lb. Comb honey is relatively scarce and rather light in weight. No. 1 cellophane-wrapped white comb has sold at $2.25-3.00; fancy up to $3.50 per case; unwrapped, $2.00; No. 2, old crop, $1.50 per case. Beeswax, 15-18c per lb.

Northeastern States: New York and Vermont—The southern part of New York has had good rainfall, improving prospects for buckwheat and other fall flows, but northern New York and Vermont are still dry and prospects for a flow from goldenrod and asters are not good. The clover crop is short, with few commercial beekeepers receiving more than half to three-quarters of a crop and many will obtain little surplus. The color is darker than usual. The market is stronger and prices higher. Few sales white extracted large lots, 5 5-6-7c per lb.; small pails, 8c per lb.; amber 60s 5c; small pails, 5¾c per lb. Sales No. 1 white comb, $2.75-3.60 per case.

Monthly Report of Honey Producers

Early in August we sent the following questions to honey producers: 1. What is the average yield per colony to date this season in your locality of (a) extracted honey? (b) comb honey? Give answer in pounds. 2. How does this yield per colony compare with the average yield for your locality? Give answer in per cent. 3. What portion of the entire 1933 crop does the yield to date represent in your estimation? Give answer in per cent. 4. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) Comb honey, fancy and No. 1, per case? 5. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 6. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 7. How is honey now moving on the market in your locality? Give answer in one word as slow, fair or rapid. The answers received are tabulated as follows:

State.	Average yield per colony. Ex.	Comb.	Pct. of av.	Pct. of crop.	Large lots. Ex.	Comb.	To grocers. Ex.	Comb.	Retail price. Ex.	Comb.	Movement.
Ala. (J. M. Cutts)	..	..	..	..	..	..	..	..	$.55	..	Fair
Calif. (L. L. Andrews)	30	..	40	100	.05¾	..	..	..	.75	.12	Fair
Colo. (O. E. Adcock)	60	40	100	60	.06	3.00	.40	3.00	.50	.15	Fair
Colo. (J. A. Green)	30	..	75	..	..	..	.30	2.40	.40	.10	Slow
Conn. (A. Latham)	15	5	20	100	..	..	..	5.00	.80	.30	Fair
Fla. (C. C. Cook)	100	..	200	50	.04	..	.30	..	.40	..	Slow
Fla. (H. Hewitt)	125	..	200	100	..	..	.45	..	.60	..	Slow
Ga. (J. J. Wilder)	30	20	50	90	.05	..	.40	..	.50	..	Fair
Ill. (A. L. Kildow)	45	25	40	..	..	..	..	..	.50	..	..
Ind. (Jay Smith)	25	..	30	25	..	..	.50	3.00	.65	.15	Slow
Ind. (T. C. Johnson)	..	..	5	100	..	..	.60	3.60	.75	.20	Slow
Ind. (E. S. Miller)	35	20	40	60	.04	1.92	.45	2.40	.60	.10	Fair
Iowa. (E. G. Brown)	200	..	130	100	.04	..	.35	..	.50	..	Fair
Kans. (J. F. Garner)	100	..	100	100	.06	..	.45	3.25	.55	.15	Fair
La. (E. C. Davis)	50	..	50	67	.04½	..	.35	..	.50	..	Slow
Md. (S. G. Crocker, Jr.)	35	25	100	100	..	..	.60	3.50	.75	.25	Slow
Mich. (Ira D. Bartlett)	125	..	125	100	.06½	..	..	..	..	..	Fair
Mich. (L. S. Griggs)	100	40	75	100	..	..	.45	2.50	.60	.15	Fair
Mich. (F. Markham)	100	60	75	90	..	..	.38	2.50	.50	.15	Fair
Mich. (E. D. Townsend)	60	..	75	95	.06	..	..	..	..	..	Rapid
Minn. (F. W. Ray)	175	..	110	100	.05	..	.37½	..	.47½	..	Fair
Minn. (B. L. Morehouse)	75	60	66	90	..	..	.45	..	.60	.15	Fair
N. Y. (Geo. B. Howe)	20	..	20	..	..	..	..	..	.50	..	Fair
N. Y. (F. W. Lesser)	40	20	50	90	..	..	..	..	..	..	Fair
N. C. (C. S. Baumgarner)	..	40	100	100	..	..	..	..	..	..	Fair
N. C. (C. L. Sams)	75	60	100	100	.06	..	.50	3.00	.70	.20	Slow
N. D. (Chas. Engle)	55	..	30	75	.05	..	.40	3.00	.45	.18	Slow
Ohio (F. Leininger)	50	..	30	100	.07	..	..	..	..	..	Rapid
Ohio. (J. F. Moore)	20	..	25	100	..	..	.50	3.00	.75	.15	..
Ohio. (R. D. Hiatt)	80	50	60	95	..	..	.55	3.60	.75	.20	Fair
Okla. (C. F. Stiles)	40	..	80	85	..	..	.50	..	.65	.15	Fair
Pa. (H. Beaver)	..	..	..	..	..	..	..	..	.60	.15	Slow
Pa. (D. C. Gilham)	30	20	60	80	..	..	.70	4.00	.90	.25	Slow
S. D. (L. A. Syverud)	50	..	..	..	..	..	.45	3.60	.60	.20	Slow
Tenn. (J. M. Buchanan)	75	40	100	90	..	..	..	..	.75	.20	Slow
Tenn. (W. L. Walling)	40	28	100	60	..	..	.65	..	.85	.20	Slow
Texas. (T. A. Bowden)	20	10	25	100	..	..	.42½	..	.50	..	Fair
Texas. (J. N. Mayes)	..	..	5	5	.04	..	.45	..	..	..	Rapid
Texas. (H. B. Parks)	35	..	70	100	.05	..	.27	..	.35	..	Fair
Utah. (M. A. Gill)	60	40	75	..	.04½	2.40	.30	..	.32½	.12	Fair
Vt. (Phillip Crane)	35	25	50	100	..	..	..	..	..	..	..
Va. (L. N. Gravely)	50	40	45	45	..	..	.67½	2.50	.80	.15	Slow
Wash. (G. W. B. Saxton)	40	..	54	100	..	..	.37½	..	.45	..	Fair
Wis. (N. E. France)	62	35	100	100	.04	..	..	..	.40	.10	Slow

To New York State Beekeepers

HONEY CONTAINERS

A WORD TO THE WISE

You should anticipate your requirements on honey containers as early as possible. Prices are almost sure to advance as the price of all raw materials has been increased.

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Write for complete price list of all honey containers and get your order in at once.

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Lower Prices!

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HONEY CONTAINERS

2½-lb. cans, per reship. case of 24	$0.90
2½-lb. cans, per carton of 100	3.10
5-lb. pails, per reship. case of 12	.80
5-lb. pails, per carton of 50	2.65
5-lb. pails, per carton of 100	5.25
10-lb. pails, per reship. case of 6	.65
10-lb. pails, per carton of 50	3.85
60-lb. cans, per case of 2 cans	.85
60-lb. cans, in bulk, each	.30
24-oz. round glass jars, per cs. of 12	.60
16-oz. round glass jars, per cs. of 24	.95
8-oz. round glass jars, per cs. of 24	.70

F. O. B., Boyd, Wisconsin

Write for price list on comb-honey wrappers and shipping cases

August Lotz Co., Boyd, Wisconsin

BEEMAN

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Wanted White Extracted Honey
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ONLY 30c EACH

YOUR SUCCESS depends entirely on your queens.
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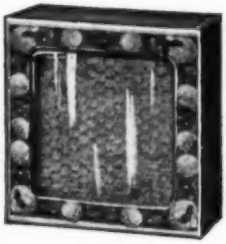
Send in your donation to the American Honey Institute today.
They need both the money and your word of encouragement.

The Stover Apiaries, Tibbee Station, Miss.

ECONOMY HONEY PACKAGES

Wrappers and Cartons



REVELATION COMB HONEY WRAPPERS

Attractive colors put "pep" back into the sale of comb honey. Individual dustproof wrappers.

FLAT WRAPPERS—Printed in two colors.

	100	500
For 4¼x4¼ section, blue and white	$0.75	$3.65
For 4x5 section, blue and white	.75	3.65
For Peewee section, blue and white	.50	
For 4¼x4¼ section (not printed)	.50	2.15

BAG WRAPPERS—Printed two colors—blue and white. 4¼x4¼x1⅞ size only: 100, 85c; 500, $3.65.

BAG FILLING DEVICE—Weight 2 lbs., each, 50c.

WINDOW CARTONS—Extra large opening to display honey fully.

For 4¼x1⅞, with cellophane front.....100, $1.00 500, $4.25 1000, $8.25

COMB HONEY CARTONS—Printed white and orange on blue background (no window). 100, 75c; 1000, $6.50. Name and address extra: 100, $1.45; 1000, $3.00. Made for 4¼x1⅞, 4¼x1⅛ and 4 x 5.

STANDARD FLUTED JARS FOR HONEY

Clear flint glass, tight caps, wax liners, four sizes—32-oz., 16-oz., 8-oz. and individual. Prices as follows:

3½-oz. jars in cartons of 24 (wt. 7 lbs.)	$.45
½-lb. jars in cartons of 24 (wt. 12 lbs)	.60
1-lb. jars in cartons of 12 (wt. 12 lbs)	.45
1-lb. jars in cartons of 24 (wt. 22 lbs.)	.80
2-lb. jars in cartons of 12 (wt. 17 lbs.)	.60

E. Z. CARRY JAR—QUART SIZE

With bail for carrying. Price—Corrugated cases, 1 doz. each, per case, 85c; wt. 20 lbs.

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A quality product made to give you service. Heavy tin tested under pressure, tight lids, non pull-out bail.

F. O. B. Hamilton, Ill., or Keokuk, Iowa. Packed in dustproof cartons. Mailing wt.

	10 cans	10	50	100	wt. 100.
2½-lb cans	6 lbs.	$.45		$3.10	31 lbs.
5-lb. pails	8 lbs.	.75	$2.65	$5.30	54 lbs.
10-lb. pails	12 lbs.	1.00	3.85	7.70	90 lbs.

60-lb. cans, 2 per case, $1.00 per case; 10-case lots or more, 95c per case.

PLAIN FRICTION TOP CANS AND PAILS

F. O. B. Chicago, Ill., or St. Louis, Mo.

In lots of not less than 1000 cans.

	Wt. per 1000.	Price per 100.
2½-lb. cans	310 lbs	$2.80
5-lb. pails	540 lbs.	5.00
10-lb. pails	900 lbs.	7.20
60-lb. cans, 2 per case	800 lbs.	.87
60-lb. cans, 50 per crt.		13.60

CORRUGATED COMB-HONEY SHIPPING CASES

Heavy corrugated board with partitons, including gummed tape, printed in red and green.

Prices on Corrugated Cases for 24 4¼x1⅞ or 4x5 sections.

Price of 5	$.90 Mailing wt. 15 lbs.
Price of 10	1.70 Mailing wt. 30 lbs.
Price of 100	16.00

Get our fall price list. Your copy free. Write today. This lists 5-gallon cans and reshipping cases, wood shipping cases, sample mailing cases, extracting equipment, honey selling helps, labels. If you need labels, send for special label catalog.

Dadant & Sons, Hamilton, Illinois

Gleanings in Bee Culture
SEPTEMBER, 1933

Large Attendance at Field Meetings

The proverbial enthusiasm of beekeepers is certainly a valuable asset to sustain morale when times are hard. One would expect poor attendance at beekeepers' meetings in regions where the honey crop is short this season, but reports indicate that the contrary is true. Several summer meetings have broken all records for attendance.

Honey Crop Conditions

Recent rains have greatly improved the condition of honey plants in the East, but in many cases they came too late to help out much on the main honey crop. Rainfall has been quite spotted, although widespread. The young clover plants which were so seriously damaged in June and July show decided improvement in much of the white and alsike clover belt, which revives hopes for next season in this region. Bumper crops of fine quality honey have been harvested in a few restricted areas in Florida, Iowa, Kansas, Michigan and the Pacific Northwest. Outside of these areas the crop is generally short. In portions of the clover belt the crop is the poorest in many years.

Recent Publications Relating to Beekeeping

A paper entitled "Some Physiological Effects of Ultraviolet Radiation on Honeybees," by Lloyd M. Bertholf, soon to be printed, will be for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 5 cents. The edition will be determined by the advance-sales demand, only enough copies being printed to fill advance orders.

Bulletin 554, "Honey Marketing in California," by Edwin V. Voorhies, Frank E. Todd and J. H. Galbraith, published by the University of California contains a complete survey of honey marketing conditions in California together with suggestions for improving the marketing of honey. While the bulletin deals only with conditions in California, they are typical of honey marketing elsewhere.

The Report of the State Apiarist of Iowa for 1932, together with a report of the convention of the Iowa Beekeepers' Association, November 17, 18, 1932, recently published by the state of Iowa, is a 56-page bulletin. It contains a number of valuable papers on beekeeping subjects.

F. R. Beuhne

Australia's brilliant beekeeping leader, Mr. F. R. Beuhne, died at Melbourne, Australia, while attending a meeting of the Victorian Apiarists' Association, of which he was secretary. Mr. Beuhne was not only an outstanding leader in beekeeping affairs in his part of the world, but was recognized as such throughout the world for his practical and scientific contributions to the industry. He spent some time in the United States in 1908 studying beekeeping methods here. He was editor of the Australian Bee Journal, and for a number of years he served as Victorian Bee Expert.

Early Preparations for Winter

In many cases preparation of the bees for winter is neglected until the arrival of cold weather. In some localities this season this will result in a large percentage of the colonies not being in condition to survive the winter. The losses will then be designated as winter losses instead of late summer and fall losses, as they really are. Much can be done in September toward having all colonies in condition for winter. In some cases, it may be necessary to greatly reduce the number of colonies in order to do this. Those who feel that they can not afford to feed colonies which are now short of honey, could unite some of them this month in order that all may be supplied with a sufficient amount of honey. It would be better to unite an apiary of 50 colonies down to 25 or less if necessary, in order to have

them all in good condition for winter instead of going into winter with 50 colonies in poor condition and lose more than half of them during the winter. The so-called winter losses can be greatly reduced by the elimination of the unfit now.

Fermentation in Honey

It is comforting to learn from the article by Prof. H. F. Wilson, beginning on page 530 in this issue, that fermentation in honey can be controlled to a large extent by the temperature of the room in which the honey is stored. Honey packers learned years ago that extracted honey should be stored in an unheated room in winter and that fermentation in honey stored in this way does not usually take place until spring when the honey is subjected to higher temperature. Prof. Wilson's experiments corroborate this. But he also points out that fermentation is slow to develop at higher temperatures, and that honey may be kept for two years or more at 75 degrees Fahrenheit without noticeable change either through fermentation or discoloration. After all, the ordinary practice of storing extracted honey in the extracting house during late summer and fall is not bad. An unheated building in which the temperature fluctuates with outside temperatures, is about as good a place for storing honey as the beekeeper could provide without considerable expense. If the bee cellar can be kept below 55° Fahrenheit, it should be a good storage place for extracted honey in sealed containers, according to Prof. Wilson's experiments.

Rearing Bees for Winter

Many inquiries are being received at the editor's desk in regard to feeding bees to stimulate brood rearing to provide young bees for winter. Many are asking when and how such feeding should be done. As a rule, the bees which survive the winter and help build up the colony in the spring, are those reared in late summer and autumn. While colonies made up largely of old bees may pull through the winter, they may be compelled to start brood rearing in mid-winter, and often such colonies dwindle badly in the spring.

Stimulative feeding in late summer and fall for the purpose of supplying a larger proportion of young bees is often quite unsatisfactory. If practiced at all, the colonies should be fed more liberally than is usually the case, and the feeding should be started the latter part of August in the North and continued through much of September if there is no fall honey flow. As a rule, leaving an abundance of honey with each colony and making sure that each has a vigorous queen, preferably one reared this season, results in an ample supply of young bees for winter even when there is no fall honey flow. If colonies are short of stores and combs of honey are not at hand, giving one or two ten-pound pails of sugar syrup at one dose appears to do the trick about as well as stimulative feeding, which in the minds of most beekeepers means feeding a small quantity of syrup every day or two.

Effect of Short Crop in Clover Region

The short crop of honey, taking the country as a whole, is unfortunate for the industry just at this time. While the shortage may make it easier to sell and it may bring about better prices, it will slow down consumption and thus delay the program of popularizing honey. The abundance of honey produced in this country during the past several years, together with low prices and extremely energetic sales efforts, have resulted in a vast multitude of new honey consumers.

Direct selling, born of necessity during recent years, has moved vast quantities of honey in five- and ten-pound pails and 60-pound cans, thus helping to dispel the idea in the minds of many consumers that honey is a luxury. Direct selling has also helped to a considerable extent in doing away with the suspicion as to the purity of honey. Of course, direct selling is an expensive method of distribution; it results in a woeful lack in uniformity of quality and in merciless price cutting, as well as other serious disadvantages; but it has resulted in bringing producer and consumer together in many cases with a better understanding on the part of both, and it has moved vast quantities of honey.

A short crop often means poor quality, and in many cases beekeepers who sell direct will supply off-grade honey to their customers who have learned to like honey because they have been getting a fine quality. Under these conditions, consumers soon lose their taste for honey and the industry loses some ground for which it has fought so valiantly in recent years.

This is one of the worst features of direct selling. The remedy is to purchase honey from beekeepers in other localities who have had a good crop, and blend if necessary to get the flavor one's customers like.

Sweet Clover Again Helps

Sweet clover, formerly considered to be a weed and classed as an enemy to farmers, has again contributed to the country's resources in those areas in which the forage crops and pasture were burned out by the early drouth. By sending its roots deep into the soil, it has been able to supply pasture and hay in localities where other forage crops have failed. Of course, no one expects dry seasons to continue indefinitely in the normally well-watered portions of the country, and there is no reason to expect that sweet clover will replace completely other forage crops that do well when the amount of rainfall is normal; but the demonstrations which sweet clover has staged in many localities during the past four dry seasons will certainly cause farmers to use it more extensively.

Apparently the greater portion of the crop of white honey produced in the United States this season is largely from sweet clover. It has again been demonstrated that a large acreage of sweet clover is not necessary for harvesting a good crop of honey from an apiary of 60 or 80 colonies. In some cases, 20 to 40 acres within range of the apiaries have supplied a satisfactory crop. This suggests again the advisability of beekeepers who own or control farms, planting sweet clover with the idea of increasing their crops of honey, if conditions are reasonably favorable for this useful plant. Of course, sweet clover can not be successfully grown everywhere; even if it could, it would not yield nectar equally well everywhere. However, it is now being grown in localities which only a few years ago were thought to be unsuitable for sweet clover. It thrives under so many different climatic conditions throughout the world that varieties can be found suitable for localities having widely different conditions.

Now that the government is determined to reduce the acreage of certain farm crops, it would certainly seem that a larger percentage of the increased idle land in this country should be in sweet clover instead of being permitted to grow weeds. Beekeepers who are hard pressed for pasture for their bees might well consider renting some of the land not used for other crops, to grow sweet clover for the nectar it produces. In a season like this has been, 20 to 40 acres of sweet clover in the vicinity of a good-sized apiary could make all the difference between failure and a good crop.

Many Colonies Short of Stores

In localities in the clover region where the drouth in June was most severe, many colonies are running short of stores. In some cases, bees have actually starved in mid-summer when ordinarily they would be able to gather more than enough for a living. Unless there is a fall honey flow in these localites, there will be a heavy loss in colonies unless they are fed. Such colonies, of course, curtail brood rearing, and, in some cases, the endless searching for nectar when little is available results in wearing out the bees rapidly. Under these conditions, good colonies go to pieces in a surprisingly short time so that they are not able to pick up and take advantage of nectar from later flowers when they come into bloom. In such cases, a ten-pound pail of sugar syrup given to each colony, or a super of unfinished honey given back to the bees, works wonders in restoring the colonies to normal condition.

These conditions are by no means common even where the drouth in June was most severe. In many cases, apiaries only a few miles apart present quite a contrast, one being well supplied with stores while the others may be dangerously short. Wherever sweet clover was present in considerable quantity, the bees have done remarkably well when the character of the season is considered. The failures and near failures in the North are in localities depending upon white clover and alsike clover. Even in these localities, conditions are extremely spotted, some apiaries having stored considerable surplus, while others are now on the verge of starvation.

Some may be inclined to let their colonies starve and replace them with package bees next spring, but in many cases a little feeding would tide them over to the fall honey flow which should enable them to build up to normal strength and store sufficient honey for winter.

Inexpensive Device for Liquefying Honey

C. H. Gilbert
Assistant Research Apiculturist, University of Wyoming

An Outfit Specially Designed for Handling Honey on a Small Scale

Never before has the sale of honey in small containers been pushed by the producer as it is today. Practically every honey producer has entered the field of retail honey marketing. The low wholesale price and slow market has caused this general trend.

Preparing honey for retail markets presents many problems. Liquefying and heating honey is a slow and, sometimes, a tedious process. This is especially true when proper equipment is not available. Honey stored in 60-pound cans, if granulated, must be heated before it can be removed from the cans. Then, if granulation in small containers is to be prevented for a time, some further heating is necessary. While it is true that some consumers prefer granulated honey, in our market these requests are few. During the past four years we have received but two requests for granulated honey, while we have heard many complaints about granulated honey which has been shipped in. In several instances we have taken honey produced elsewhere from the shelves of our local stores and liquefied it for them. Since the labels were destroyed they were forced to sell it under an improvised typewritten label. We hold the business of several dealers because we guarantee to furnish liquid honey and to replace without charge any that granulates on the shelves. This type of marketing makes honey processing and heating a necessity.

The University of Wyoming is not interested in producing honey for market. However, considerable honey is produced by experimental colonies and it must be sold. We are, therefore, forced into the marketing game. All University honey is sold to a student who processes and markets it.

In order to handle our honey efficiently we have designed and constructed special tanks. Because of lack of space we must have a small, compact unit. Several beekeepers have looked over the set-up and are enthusiastic about it. This article has been written at their request. The tanks used and the principles involved are undoubtedly well known to many beekeepers, but, judging from local interest, they will be new to some.

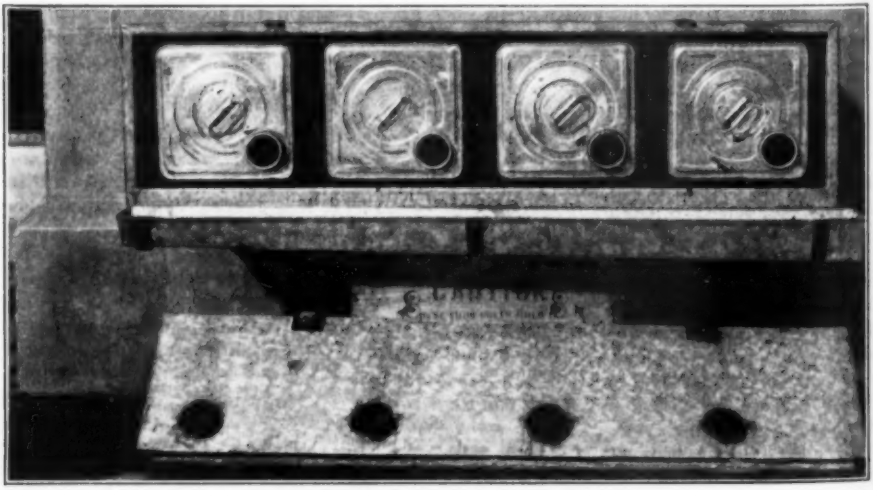


Fig 1.—This small liquefying tank holds four cans at a time. The cans are placed on their sides with the opening at the bottom so that the honey will run out as it melts. The cover, with its holes to correspond with the screw-cap openings of the can, is shown below the tank.

Danger of Overheating

The big problem in processing honey is to prevent overheating. There are some beekeepers who refuse to heat honey and much can be said for and against it. I am convinced that damage to honey if properly heated has been greatly exaggerated. Be that as it may, we must agree that some heating is necessary to liquefy granulated honey.

The problem, then, is to heat it sufficiently to liquefy it without causing damage. If too much heat is applied the sugars will be burned. This darkens the honey and changes its flavor. To avoid this, correct temperatures must be applied for a certain length of time. The trouble is that many beekeepers have no idea of the temperature of the honey when it is being heated and fail to check accurately the length of time the heat is applied. The following example will illustrate this point.

A certain beekeeper liquefies honey in 60-pound cans by submerging them in a tank full of water. The process requires about two days. The honey begins to liquefy immediately, but the liquid honey can not drain off and the heat is applied to it continually until the entire sixty pounds is liquid. Thus it is probably injured by heating.

To prevent overheating during the process of liquefication we have made a small and inexpensive tank which permits the honey to run off as soon as it becomes liquid. This also speeds up the process considerably.

Construction of the Liquefying Tank

The liquefying tank shown in Fig. 1 is made to hold four 60-pound cans. The cans, held in position by angle irons, are placed in the tank to permit uniform distribution of steam throughout. The cans are placed on their sides with the opening in the lower corner. The tank is then closed by means of a cover (Fig. 1) in which four holes have been made to fit snugly over the openings in the cans. As the steam condenses the water drips to the bottom of the tank and is carried away through a small pipe. A close fitting cover with flange properly placed on the bottom (see lower part of cover Fig. 1)

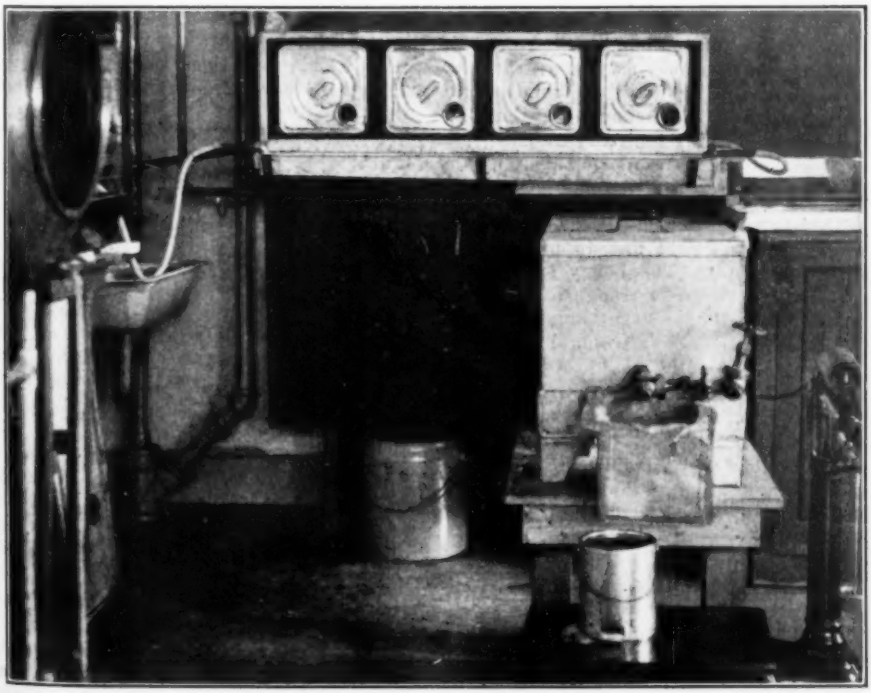


Fig. 2.—General arrangement of the liquefying and heating apparatus. As the honey melts it drips from the cans into the trough which empties into the water-jacketed heating tank at the right, where it is heated to the proper temperature for bottling or canning.

absolutely prevents water from getting into the honey. The liquid honey drips from the can openings into a trough and flows from there to the heating tank, Fig. 2.

The liquefying tank can also be used where steam is not available. The drain is closed and about one and one-half inches of water is placed in the bottom of the tank. It can then be used over a gas flame or a coal stove. The honey is heated by the steam formed by heating the water. The water is heated over and over as the steam condenses. This method is somewhat slower than live steam, but it saves the trouble and expense of firing a boiler. A two-can capacity tank has given satisfactory results when heated over a coal range. Two hours were required to liquefy two 60-pound cans. In the four-can liquefier with live steam, four 60-pound cans of granulated honey can be entirely liquefied in one hour.

The angle-iron support should be inclined toward the back or bottom of the cans. Then as the cake of granulated honey becomes smaller it will slide toward the bottom of the can and thus leave the opening free. If this is not done, the chunk of granulated honey will block the opening and the honey may be overheated. Some liquid honey will be retained in each can, and they should be removed from the liquefying tank and emptied just as soon as the granulation has disappeared.

This type of liquefier can not be used when honey is cold and in a liquid or semi-liquid state. The honey spills from the can into an open trough and if it is not liquid and warm, the trough will not handle it. If the honey is liquid enough to run from the can it should be poured directly into the warming tank.

The Water-Jacketed Heating Tank

The liquid honey runs directly from the trough to a heating tank. This tank is shown at the lower right in Fig 2. The honey in this tank is surrounded, except the top, by a two-inch jacket of water. The honey is heated to the correct temperature, which is retained as long as desired. The heating tank serves also as a clarifier. An open bottom baffle plate across the gate end of the tank helps to remove foam, wax, and sediment from the honey. When the honey is drawn from the tank it is passed through a fine mesh strainer. The capacity of the heating tank is, of course, the same as the liquefier.

The water jacket may be heated on a coal stove, gas flame, by steam, or by electricity. An electric plate is the ideal way, because the temperature can be controlled accurately by means of thermo-regulators. It is not recommended to the average producer, however, because of the cost of electrical energy and the expense of necessary regulators. No matter how the honey is heated the temperature must be watched closely. If steam is used the temperature can be regulated by the flow of steam. When heated on a cook stove or gas flame the temperature may be regulated by the size of flame, by the addition of cold water occasionally, or by removal from the stove. The electric plate has many advantages, but its use necessitates a greater cash outlay by the beekeeper.

The measurements of the tanks are given below:

LIQUEFYING TANK SHOWN IN FIG. 1.

	Left to right.	Front to rear.	Top to bottom.
4-can capacity	48 inches	16 inches	13 inches
2-can capacity	24 inches	16 inches	13 inches

The trough is tapered and is supported by V-shaped strap iron braces which fit into slots on the bottom of the tank. These supports are not attached to the trough, and by changing them and reversing the trough the flow of honey can be changed from right to left.

The following are the measurements of the heating tank shown in Fig. 2, lower right. These measurements are inside only and do not account for a two-inch water jacket.

	Length.	Depth.	Width.
4-can capacity	32 inches	12 inches	13 inches
2-can capacity	18 inches	12 inches	13 inches

The measurements can be varied to fit the size of sheet metal available. The gate end need not be water-jacketed and considerable difficulty in attaching the honey gate and water valve will thus be avoided.

Cost of the Tanks

The four-can liquefier and heating tank were made locally and cost $14.80 and $19.00 respectively. This figure does not include the honey gate or water valve but does include the screw connections for them. The two-can capacity set-up was made here in the laboratory. The materials were as follows: 50 pounds 24-gauge galvanized iron at 10 cents, $5.00; a few 1½-pound rivets; and about 1½ pounds solder.

Laramie, Wyoming.

Hive Temperatures During the Summer

Prof. W. E. Dunham

Effect of Variation in Outside Temperatures Upon Temperatures Within the Hive and Brood-Rearing

The temperature reactions of honeybees have been very popular phases of investigation for research workers in beekeeping, particularly temperature reactions of honeybees during the winter period, although a number of investigators have reported on summer temperatures within the hive. Of the climatic factors in the environment of the honeybees, temperature undoubtedly modifies their reactions more than any other factor. The well-known clustering of bees during the winter and the period of normal brooding of honeybees are two distinct physiological conditions within the colony, brought about by the one environmental factor, temperature.

In the following paragraphs a summary will be given of the investigations conducted by the author at the Ohio State University on hive temperatures during the summer period.

Set-up of the Experiment

Four colonies of medium strength and of the Italian race of bees were selected for the experiment. These colonies, in ten-frame standard hives, were set back on a platform within a building so that they were on the same level as the bottom of the window casings. The lower half of each window was raised and the open space covered with beaver board. The entrance of each colony was extended outdoors by means of a tunnel 14½"x8"x⅜", thus allowing normal flight activities. The outdoor entrance of each tunnel measured 4½"x⅜". See Fig. 1 for outdoor view of the experiment.

Temperatures within each hive were taken by means of the electrical thermocouple method, but room and outdoor temperatures were taken by mercurial thermometers. There were eight thermocouple wires running into each hive at various locations, but all were placed at the same depth which was 4½" from the top of the hive. In Fig. 2, the general set-up of the experiment inside the building is shown. The large box on the left of the platform is the cold chamber in which a colony was placed, the two colonies in the center were normal colonies used as checks, while on the extreme right is the heat chamber in which a colony was placed. The wires from the hives go to the compound thermocouple with which the temperatures were determined. Temperatures were taken in each colony every hour of the day for 12 consecutive days, making a total of 9216 readings taken during the

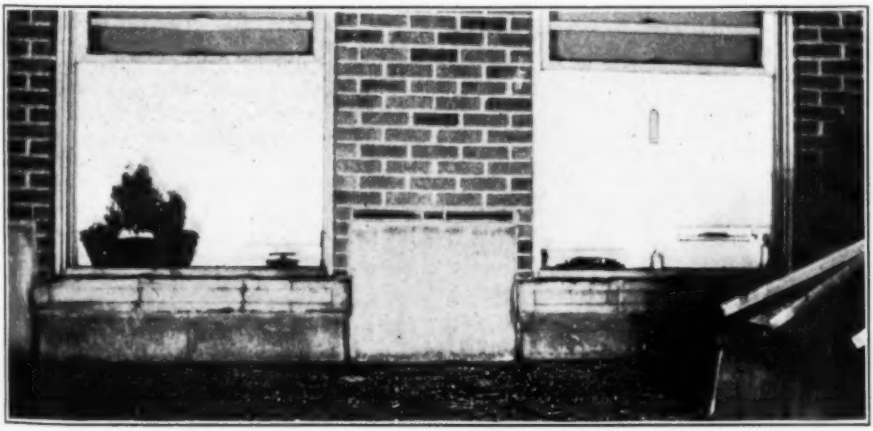


Fig. 1.—Arrangement of hive entrances of colonies in the experiment. Lower sash of windows were raised and the open space covered with beaver board with openings for entrances.

experimental period. Careful notes were taken at the beginning and close of the experiment on the amount and position of the brood, honey, and empty comb space.

A Normal Colony

A discussion of the temperatures occurring within the hive during one of the days of the experimental period will be sufficient to give a clear representation of the tendency of the temperature range occurring within the hive throughout the experiment. There was a rather wide variation of temperatures within the hive.

Upon analysis of these temperatures and correlating them with the position of the brood and broodless areas of the hive it was found that there was a definite grouping of the temperatures depending upon the area within which the temperatures were taken. These areas may be designated as the central brood area, outer brood area, and broodless area. The average temperature for the day on which this report is being given was 93.4° F. for the central brood area; 89.8° F. for the outer brood area; and 87.4° F. for the broodless area. The average room temperature for the day was 83° F., and the average outdoor temperature at the entrance was 82° F., which together represent the environmental temperature to which the colony was exposed.

There was little difference in the temperatures occurring hourly in the central brood area, there being only 1.5° F. variation during the entire day. In the outer brood area there was a difference of 6.3° F. between the lowest and highest temperature recorded, while in the broodless area the difference between the lowest and highest temperature recorded was 9.8° F. When comparing the hourly temperatures occurring in the three areas within the hive with the environmental temperatures to which the colony was exposed, the temperatures within the broodless area were influenced most by fluctuations in the environmental temperatures, the outer brood area to a less degree, and the central brood area very little if any.

Effect of High Environmental Temperatures on the Brood-Nest Temperatures

During the first three days of the experiment no heat was applied to the colony in the heat chamber; thus the temperatures surrounding this colony were the same as those surrounding the check colonies. Beginning the morning of the fourth day, the cover was placed over the heat chamber and the heat regulated at the desired temperature range. All other environmental factors were the same as those to which the check colonies were exposed.

During the first three days the average daily temperature of the central brood area ranged from 93.8° to 94.2° F.; the average daily temperature of the outer brood area ranged from 91.5° F. to 92.1° F.; while the environmental temperatures to which the colony was subjected were—room temperature, 77.2° to 80.7° F.; outdoor temperature, 75.2° to 82° F. These temperatures were very similar to those occurring in the check colonies during that same period.

During the remaining nine days of the experimental period while the colony was subjected to high temperatures, the average daily temperature range was as follows: central brood area from 94.3° to 95.6° F.; outer brood area from 93.5° to 94.9° F.; while the temperatures of the heat chamber ranged from 89° to 93.5° F., and the temperatures at the entrance of the colony were from 70.6° to 83.3° F. When making an analysis of the data recorded, it was clearly shown that there was an increase in the temperatures occurring within the central brood area as well as in the outer brood area when high external temperatures prevailed.

An interesting feature of this experiment was the clustering of bees outside the entrance when high temperatures occurred. The data gathered indicated that in a colony of medium strength the coolest region in the brood-chamber (in speaking of the brood-chamber I have reference to the entire 10 frames in a single-story colony or 20 frames in a two-story colony) must reach 93.5° F. in order to stimulate the bees to start clustering outside. The warmest region inside the hive at this same time may vary considerably, depending on the height of external temperatures but always it will be at a higher level than 93.5° F.

Another significant observation was that after the colony was subjected to high external temperatures, the egg-laying activity of the queen was restricted and the oviposition of the eggs was scattered throughout the combs containing brood.

The Effect of Low Temperatures on the Brood Nest

For five of the twelve days of the experimental period, the colony in the cold

chamber was subjected to the same temperatures as the check colonies. During the remaining seven days the colony was subjected to temperatures lower than would be normal for that time of year.

The temperatures of the central brood area showed a remarkable constancy even when the external temperatures varied over a wide range. During the first five days of the experiment, the average daily temperature range of the central brood area was between 93.5° and 94° F., while the average daily external temperatures ranged from 79.5° to 82.5° F. for room temperatures and from 71.4° to 83.3° F. for the temperatures at the outdoor entrance of the hive. For the remaining seven days, when the colony was subjected to low external temperatures the average daily temperature of the central brood area ranged from 92.8° to 93.4° F., while during this same period the average daily temperature for the cold chamber ranged from about 52° to 65° F., and the average daily temperature at the outdoor entrance of the hive ranged from 70.6 to 82° F.

The average daily temperature of the outer brood area, for the first five days of the experiment remained quite constant. However, the average daily temperature ranged from 1.6° to 2.3° F. lower than the temperatures of the central brood area for the same period. During the remaining seven days of the experiment, the approximate average daily temperature of the outer brood area dropped from 91° to 78° F. When comparing the temperatures of the outer brood area with the low environmental temperatures, it was evident that the influence of low external temperatures on the temperature of the outer brood area increased as time went on. This can be explained easily since observations at the close of the experiment showed that there had been no egg laying going on in the outer brood area after low external temperatures had been applied. If the experiment had been prolonged, the final result doubtlessly would have shown that what was originally the outer brood area would have become a broodless area as more and more of the brood emerged. This could be called a period of transition. As the brood emerged, the empty comb space gradually would have become increasingly greater and the final result would have been a broodless area. When the outer brood area became a broodless area, there would be obviously a transition of temperature.

Columbus, Ohio.

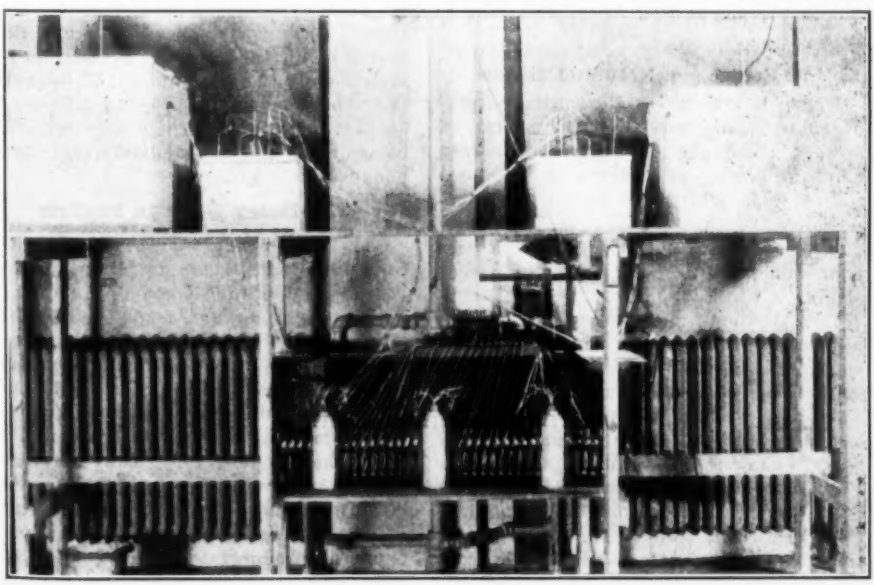


Fig. 2.—Arrangement of hives and temperature reading apparatus. The large box on the platform at the left is the cold chamber and the box on the right is the heat chamber. Two colonies in center were used as checks.

Some Factors Involved in Spoilage of Honey

Prof. H. F. Wilson
Department of Economic Entomology, University of Wisconsin

How to Prevent Fermentation and Other Deterioration by Proper Handling and Storage

Honey is the oldest sweet of which we have any record, yet it is only within recent years that it has become the subject of wide research, and that largely at the hands of the chemist. The net result is an accumulation of data which show that honey is primarily a carbohydrate mixture of invert sugar of approximately 38 per cent to 40 per cent levulose and 34 per cent to 35 per cent dextrose, 1 per cent to 10 per cent sucrose, and less than 1 per cent of dextrine except when contaminated with honeydew. The moisture content of normal honey varies from 14 per cent to 20 per cent. Small amounts of all of the minerals commonly associated with foods have been found in the ash.

From the viewpoint of the analytical chemist, this information is perhaps sufficient, but to those who are engaged in the beekeeping industry, it seems quite necessary that information be obtained on the microbiology of honey, and particularly any biological factors which may prove to be an asset to honey when it is used as food.

The Source and Nature of Honey

Honey is a sweet viscid substance produced by honeybees from the nectar of flowers. Its flavor and color are derived from the nectar, and vary with the floral source from which the nectar is taken. So-called "impure" honey may be produced from sugar syrup, fruit juices, and from honeydew of both plant and insect origin.

Two distinct operations occur in the production of honey by the bee: 1. The nectar is collected by the bee and carried to the hive where it is worked upon mechanically by the bee to evaporate the excess moisture. 2. During the mechanical operations of the bee in carrying the nectar to the hive and manipulating it to evaporate the excess moisture, inversion, perhaps already started in the flower, is completed by enzymes and chemicals from the body of the bee. The process of collecting the nectar from the flowers by the bee is reasonably well understood and the chemical changes which occur in the progress from nectar to honey presumably have been well demonstrated by chemical research.

Any statements made concerning the chemical composition of honey and the danger of deterioration must be relative. For honey from the same source varies from year to year in the same locality, and may vary to a greater extent in more distant localities. These differences are due, of course, to variations in the climatic and soil conditions under which the nectar is produced.

It can also be shown that there is considerable variation in so-called ripe and unripe honeys. It is generally considered that all honey is ripe when it has been sealed in the comb by the bees. If this were true, all sealed honey of the same source should contain about the same amount of moisture. However, observations show that sealed honey of the same season may vary from one to two per cent in moisture content, and that unsealed honey may contain less moisture than sealed honey taken earlier or later in the season from the same apiary. These varying conditions make it quite difficult to set a standard for ripe honey with the commonly proposed standard weight of 12 pounds to the gallon.

The Honey Spoilage Problem

The average honey crop in the United States can not be accurately estimated, for a considerable portion of the crop never passes through trade channels. In Wisconsin, a normal crop will approximate ten million pounds, but crops estimated at eighteen million pounds have been produced in more favorable years. This is not a large amount as compared with other crops, yet for many farm beekeepers it affords a source of revenue that is of great importance in certain years. In the process of carrying this honey from the producer to the consumer, it is often necessary to hold shipments in storage for many months. Frequently, shipments of honey undergo fermentation during these periods of storage or may

change in color and flavor, and a serious monetary loss follows.

It is generally held by many beekeepers, and others as well, that honey will keep indefinitely, and recent investigations show that it is actually possible to keep honey in its natural condition over a long period of time if stored at temperatures below 50° F. However, because of the ease with which honey is broken down at higher temperatures, it may be thought of as a product readily perishable under average conditions, and those who have had the opportunity to study numerous samples of honey know that it rapidly deteriorates in color and flavor at relatively high temperatures, and, when contaminated with yeasts, it spoils from fermentation at relatively low temperatures.

Honey that is one year old is generally considered by bottlers and brokers to be inferior to freshly extracted honey. Furthermore, the bottlers are suspicious of any honey that they buy after the first of January because of the possible danger of fermentation. This fear on the part of bottlers or dealers is well founded, but the reasons have not been demonstrated until in recent years.

Many beekeepers are unaware that there are good and bad methods of storing honey after it has been extracted. However, we now know on the basis of observations and experiments that temperature is of the utmost importance when honey is held in storage over long periods of time. We have samples that have now been in storage for nearly four years. Up to the present time, they show no signs of deterioration, either from fermentation, loss in flavor, or change in color.

There are three general conditions to be found in the deterioration of honey, any one of which is sufficient to lower the market grade of the product. In order of importance these are: spoilage by fermentation, loss of flavor, and color changes in which the color passes from a lighter to a darker grade. The proper handling of honey after its removal from the beehive and during its progress to the consumer is a very important problem.

If honey is not well ripened or if it is allowed to absorb moisture while stored in open tanks, fermentation is sure to occur when temperature conditions are favorable for the development of yeasts in honey. Even supposedly well-ripened honey is subject to fermentation as a result of the physical changes which occur during granulation after the honey is extracted and put in cans or jars. Most honeys contain a high content of dextrose and crystallize soon after being extracted from the comb. The crystallization of the mass is not complete, however, for close examination will show that the crystals are dispersed in a dilute liquid phase.

Yeasts in Honey

Fermentation in honey is caused by yeasts, and a half dozen or more species have been discovered and described by scientists. Yeasts are found everywhere, and sugar tolerant yeasts which are capable of fermenting honey occur more or less abundantly in and about all bee yards as shown by a number of investigators. Spores of these yeasts are to be found in practically every sample of honey, and fermentation is almost sure to occur in all honeys after complete crystallization if held for a long period of time at temperatures suitable for the development of yeasts.

The Relation of Moisture to Fermentation in Honey

Moisture is necessary for fermentation. Beekeepers have for a long time known that excess moisture has some relation to the spoilage of honey by fermentation, but without knowing just how it came about and more particularly the combined relation of moisture and temperature.

It is known that honey extracted in the season from unsealed combs is more likely to ferment than honey from fully sealed combs or from even partially sealed combs extracted late in the season. Honey from fully sealed combs is generally considered ripe honey by the beekeeper, but many of them believe that the maturing process in honey continues after the combs are sealed if they are left on the bees. For this reason, many beekeepers do not remove the honey from the hive until a month or more after it is fully sealed.

The moisture content of honey extracted before combs are partially sealed is undoubtedly higher than honey from fully sealed combs. But honey absorbs and gives off moisture equally well under proper conditions. Even honey that is extracted early in the season will give off moisture and become thicker in a dry atmosphere, and honey will absorb moisture and become thinner in a wet atmosphere.

It is, therefore, difficult to decide when honey is safe from fermentation, but in the humid climates of eastern United States, honey should not be extracted until the combs are at least two-thirds sealed.

Because of the fact that fermentation begins at the top of a container and works downward, and also because it has been shown that there is more moisture in the top layers of crystallized honey than in the bottom layers, it is quite evident that moisture does play an important part, but temperature is equally important and probably really governs fermentation. Honey containing a high percentage of moisture does not ferment at temperatures below 50° F., and only slowly or not at all at temperatures somewhat above 80° F. Honey of relatively low moisture content will nearly always ferment if held for any period of time at temperatures near 60° F.

The Relation of Temperature to the Spoilage of Honey

Experimental evidence is now available to show that temperature has an important part in the preservation and spoilage of honey after it is removed from the hive. At the Wisconsin Agricultural Experiment Station a wide range of samples have been taken at weekly periods during the honey crop seasons of 1929, 1930, 1931 and 1932, and placed in chambers fitted with devices for keeping the temperature constant for long periods of time. The samples of honey in glass jars have been held for long periods of time in these chambers at temperatures of 40° F., 60° F., 64° F., 75° F., 80° F. and 100° F.

The information secured from these experiments shows that any lot of honey is continuously affected by the temperature conditions surrounding it while on its way to market. Below a point of about 50° F. to 55° F. no changes take place, and honey may be preserved in its natural state for an indefinite period of time. At 60° F. honey ferments more quickly than at higher temperatures. Honey crystallizes more rapidly with the lowering of the temperature, and since normal honey must become crystallized before fermentation begins there is a temperature at which, with rapid crystallization, fermentation develops more rapidly than it does at other temperatures. With our present knowledge of the subject this temperature appears to be near 60° F. Above this point fermentation is delayed by slower crystallization. Fermentation in crystallized honey is also slow to develop at high temperatures, and at 75° F. honey may be kept for two or more years without noticeable changes in color or flavor.

At 80° F. normal honeys in sealed containers have not fermented during a period of nearly four years, but serious deterioration in color and flavor takes place after sixteen months so that if honey is allowed to remain at temperatures above 80° F. for a long period of time no fermentation is likely to occur, but detrimental changes in color and flavor are sure to occur.

As the storage temperatures increase above 80° F., deterioration in color and flavor increases. With this knowledge beekeepers can often prevent losses from fermentation as well as from changes in color and flavor by using care in selecting storage rooms for their honey. Of course, the easiest way to prevent fermentation is to heat the honey to 160° F., then immediately put it into sealed containers. If this is done carefully, honey will not ferment regardless of where it is stored. Many beekeepers follow the practice of heating their honey before putting it in cans for market, but there still are many who do not, and every year losses occur from fermentation that could have been avoided. Losses due to changes in color and flavor are continually greater than necessary.

One important fact in the whole marketing situation is that the beekeeper should not be held responsible for losses by fermentation, provided the shipment was in good condition when shipped. Dealers buying carload lots of honey should be made acquainted with the danger of holding unheated honey for any length of time in storage rooms when the temperature is from 55° to 65° F. Beekeepers who do not heat honey before canning should not store it in cool basements and should not leave tanks of crystallized honey open where moisture can be absorbed. The danger of fermentation is too great.

Honey extracted from unsealed combs during the first two weeks of the honey flow should not be sold unless heated to 160° F. When unheated honey is sold in 5, 10, or 60 pound tins the customer should be warned not to store honey in the basement if the temperature is lower than 70° F.

Madison, Wisconsin.

Standardization of Apiary Equipment

Dr. E. F. Phillips

Government Control of Apiaries in Russia Affords Opportunity for Complete Uniformity in Hives and Other Equipment

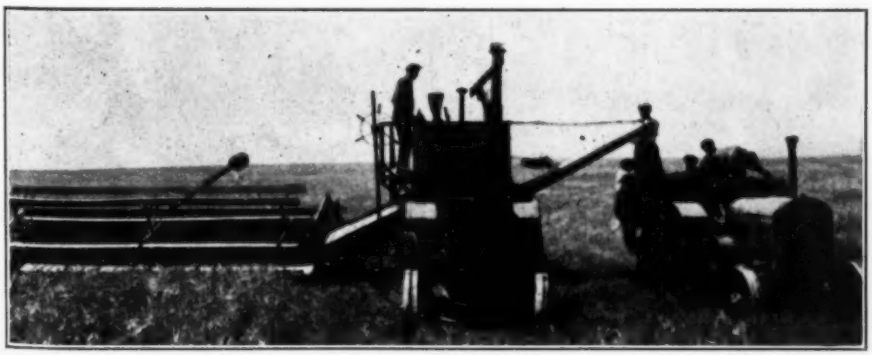
Complete centralization and government control of collective apiaries make possible an ultimately more nearly complete uniformity of apiary equipment than is possible elsewhere in the world. While such uniformity may later be attained, it is not yet accomplished, for some of the recently established collective apiaries still have bees in the assorted hives in which they were housed before the colonies were confiscated from the wealthier peasants (kulaks). These will be put into standard hives later. To decide on a standard hive for such an enormous beekeeping undertaking, with apiaries under such a great variety of conditions of climate, flora, and beekeeping skill, is a responsibility much greater than that with which an individual beekeeper is ever faced.

It is probably true that an official standard for beehives is always dangerous, and it can at least be said that those countries which have adopted official standards for hives seem to be handicapped in their beekeeping by this standardization, as Great Britain for example. On the other hand it greatly facilitates hive manufacture if only one hive is made. The danger lies in the fact that if an incorrect decision is made for a beekeeping project as vast as that of the Soviet Union, it might result in a decrease in the probability of success for the project, and in the case of the Soviet Union might even threaten their whole agricultural plan.

American Standards Result of Natural Development

To have discussed the hive question 40 or 50 years ago would have caused many beekeepers to become excited, but now it seems permissible to discuss hives from the angle of evaluating the communist de-

A Russian beekeeper beside a hive which he has just invented and of which he is quite proud. Photo at Ismalova Beekeeping School.



They wish to mechanize their farms. Here is shown a combine on a collective farm. Photo from American Russian Institute.

cision without exciting anybody except possibly a few who recall the heated discussions of an earlier day here. As in the Soviet Union, we have in the United States and Canada a great variety of beekeeping localities and all degrees of beekeeping skill. In neither country in North America has there been governmental or organization interference with the free choice of hives; and uniformity, amounting to at least 95% of all hives in modern apiaries, has come about through experience and experimentation. Such changes as we have made in the current styles in hives — and they have been rather extensive—have been made to meet changed conditions in beekeeping. If at some time there had been an official adoption of some hive, such changes would have been difficult or impossible. We have first of all learned that it is the skill of the beekeeper more than the hive which brings success, but we also know that the most efficient hive is the one demanding the least labor in operation and the one which most easily permits the beekeeper to give the bees what they need when they need it or well in advance of these needs.

Through a process of elimination of the less fit hives and hive types, we have come to a general use of the Langstroth hive. Through more recent experience of some of the best beekeepers it is found

A recently invented entrance guard on a pressed-straw hive. This suggests the complicated entrance used in central Europe.

that the two-story Langstroth hive is the safest hive arrangement so far known for the variety of conditions found in this country, this combination being virtually fool proof. Beekeepers of as widely scattered places as Australia, New Zealand and South Africa have found it profitable to fall in line. If the beekeepers of the Soviet Union had wished to find a hive suitable to the greatest variety of conditions and all degrees of beekeeping skill, they might well have reviewed experience

A training school for teachers. The professor is explaining the organization of the Soviet government. Photo from American Russian Institute.

with the Langstroth hive and have profited by our mistakes and successes.

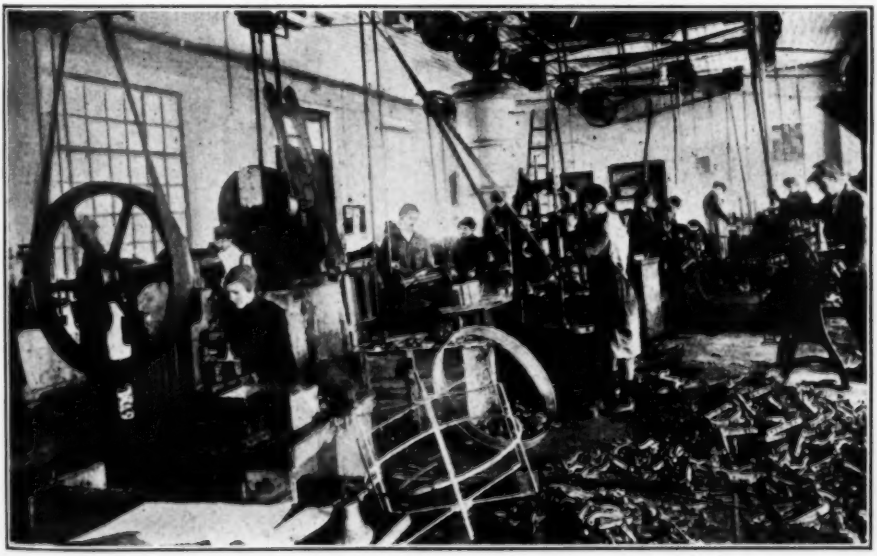
Some Disadvantages of Deep-Frame Hives

The frame hives most commonly seen in the Soviet Union are the Dadant-Blatt hives so often used in those parts of western Europe which have come under French influence, and this is the hive adopted for the Soviet Union. The frames are large, which is an advance over some of the small frames encountered in Great Britain and parts of central Europe. They are essentially the same as our Jumbo or Modified Dadant frames, and ten are used in a hive body. With such a hive, smaller frames must be used for supers, since the frames are too large for extracting, and the beekeeper is faced with the nuisance of having two sizes of frames in his apiary. Many of the best swarm-control measures can not be employed with such hives, because frames can not be transposed from brood-chamber to supers, and swarm control is a serious problem in the Soviet Union.

The most serious but not always appreciated disadvantage of a single-story deep-frame hive is that there is usually not enough honey left with the colonies to insure their proper development in spring, since the use of food-chambers is uncommon with deep frame hives. Beekeepers who use the deep frames usually think that there is surely enough room for stores, whereas the hive is too small for both stores and brood in spring, to get the best results.

At least half of the frame hives in the Soviet Union are Dadant-Blatt hives, but if I had the responsibility for good results with the forty million colonies which they hope to possess, I should scrap the present frames, reduce the hive bodies to about Langstroth depth, and use two hive bodies throughout the year. Such a terrific sacrifice would be justified in an effort to insure safe and profitable beekeeping and would save untold labor in the end. It would make for better beekeeping for their less skilled beekeepers, for, while the deep frames can and do give excellent results in the hands of good beekeepers, they are in that respect just like any other hive, no better and no worse.

The communist plan is relatively new, so of course there are still colonies in primitive hives. A few of these which have not yet been transferred may still be encountered in modern apiaries. The primitive hives of the Caucasus region have been shown in illustrations in several bee journals, since Gorbietcheff, formerly at Tiflis and now at the Essentucki Experiment Station, had some fine photographs of such hives made and distributed them among his beekeeping friends in other countries. I received such a set from him years ago. In some parts



A beekeeping supply factory at Taganrog. Photo by Pchelovodsojus.

of the Soviet Union, the primitive hives are much like the straw skeps of parts of western Europe, but were often made of willow branches instead of straw. In the mountains some of the hives are made of split logs, hollowed out to provide space for the colonies. These could be used without killing the bees when the honey crop was taken.

Mechanization of Apiaries

In spite of the fact that labor is abundant and inexpensive (on American standards), it is the desire of the communists to install mechanical aids for their work wherever possible. They are mechanizing their collective farms in many ways; and in formulating plans for their beekeeping operations, mechanization of the apiaries receives much attention. All manner of mechanical devices have been proposed, just as with us, and most of them are just as impractical as the innumerable gadgets patented each year in the United States to bring mechanical aid to the beekeeper and riches to the inventor.

Our chief mechanical aid comes in improved extracting equipment, and this is obviously the place where such things are most needed in the Soviet Union. The few extractors which I saw were mostly two or four frame extractors built on the American pattern, as contrasted with the types used in middle Europe. They were not power driven. When asked for my opinion of the most effective ways to bring mechanization to the aid of their beekeeping, I recommended power driven extractors for their larger apiaries, steam or electrically heated uncapping knives or uncapping machines, and the use of larger storage tanks for honey, so that the honey might be strained better. Many of the storage tanks were small, so that they must be emptied too soon in order to make room for more honey. The extracting capacity of the present outfits, taking into consideration the extractor capacity and the skill of the operators, rarely exceeds four hundred pounds a day. Uncapping knives are much like those which we use, and smokers, veils, and other pieces of minor equipment have been modeled after ours.

Copy American Methods in Making Comb Foundation

Like beekeepers who use modern equipment everywhere, the beekeepers of the Soviet Union desire to use full sheets of comb foundation for all colonies. They now have eight mills for manufacturing comb foundation, almost identical with the Weed-process machines, but manufactured in the Ukraine. Plans are made for completing at least 42 more such mills under the Second Five Year Plan. In fact, as elsewhere stated, a total of 50 mills is scarcely enough for the fulfillment of their undertaking.

In one of the factories where comb foundation was being manufactured, I had opportunity to examine their product and found it not especially good. The chief

Harvesting honey at the Lenin Collective Farm. Note the divided inner cover which is standard equipment.

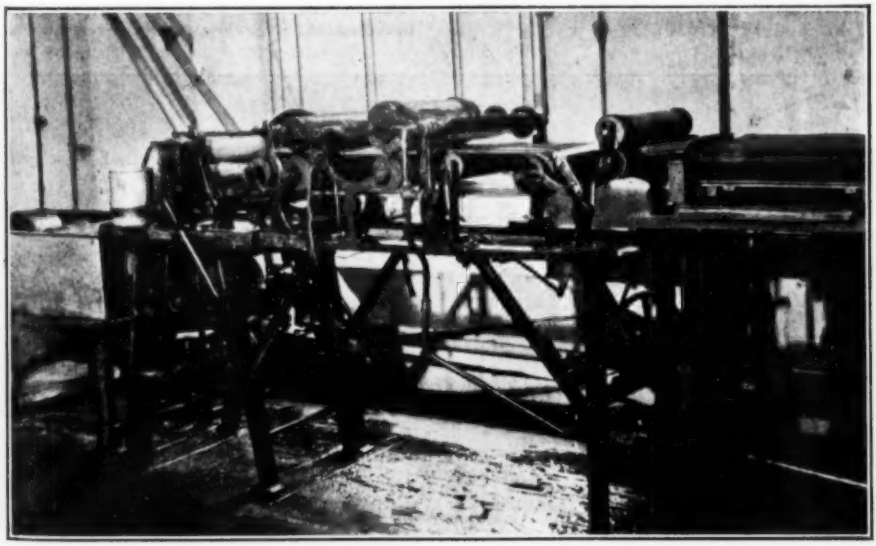
difficulty was that in the process of manufacture the wax was so stretched that the cells did not have the same dimensions in all three directions in which they could be measured, a difficulty which had not been previously noted. Whether this is due entirely to the mills used or to the quality of beeswax used for the manufacture of comb foundation, I was unable to determine without some tests, but it may be due to both causes. At any rate, as I pointed out in a later lecture in Moscow, the beeswax used was inadequately cleaned, much propolis and other foreign material being left in it. Some of the foreign material in the comb foundation was large enough to be plainly visible, and such wax, of course, can yield only an inferior comb foundation.

A Joke on an American Manufacturer

It may not be inappropriate to tell a joke on one of our American manufacturers of comb foundation. In my remarks about cleaning their beeswax, I merely called attention to the need of removing as much propolis and foreign solid material as practicable, for the purpose of giving greater strength to the foundation and to obviate stretching of combs as much as possible. I also called attention to the fact that with deep frames, stretching is much more apt to occur than with a shallower frame. At the close of that lecture, one of their technical workers came to the platform and asked if I advised that they clean their beeswax in the same manner as is employed by one of the firms in this country which makes comb foundation, and which he named. My reply was that the firm mentioned uses a secret process for cleaning wax, that I did not know the method, but that I had intended merely to emphasize the need of cleaning the wax as much as feasible otherwise. He replied that if I did not know the method used by the American firm, he could tell me, and that he proceeded to do. He outlined the method rather accurately, as I have since learned. He likewise told me where the necessary machinery could be and had been purchased.

It was a long trip to go to Moscow for that morsel of information, but I have since learned that the method as he gave it has more recently been greatly changed and improved. They are far from being asleep in the Soviet Union. The change in angle of the cell base of comb foundation has also been patented in the Soviet Union by one of their technical workers.

For processing honey in preparation for market, there is a large plant in Leningrad which, unfortunately, I was unable to visit, but I was shown photographs which indicated the methods. It resembles a high class honey bottling outfit such as is used in this country. Before exportation, all honey is liquefied, blended, and



A Weed process foundation machine made in Russia. Photo by Pchelovodsojus.

freed so far as possible of impurities. If the operations are as good as the equipment, the exported honey should be of high quality.

In keeping with the usual condemnation of things from a capitalistic country, the beekeepers are anxious to find means of eliminating the bothersome uncapping of honey and even extracting by centrifugal force. They are seeking some sort of melting device for removing cappings without injuring the honey or the combs. Similarly they are seeking substitutes for wood in hive construction, which seems strange in a country with the world's largest supply of standing timber. But there is some difficulty in getting lumber as needed because of transportation difficulties, and I saw several materials which are being tested for hive construction. One of them was ordinary straw, compressed in a form, and another was a mixture of straw and top soil, which was said to give rather good results. Some of these materials have been patented in the Soviet Union for hive making, but I was unable to learn that they had actually been used for the purpose.

Ithaca, New York.

Butcher, Baker, and Candlestick Maker

E. R. Root

Despite Depression and Drouth, the American Honey Institute on the Upgrade Again

The butcher, the baker and the candlestick maker have all been hit by the depression. Some have been hit worse than others. The forgotten man, the man out of a job, the white-collar man, the man who can do no heavy work has been hit hard. The farmer has had his trouble, but he has enough to eat. The depression has been especially hard on the beekeeper. When he has had piled on top of it drouth for three or four years in succession, he is hit doubly hard.

Just when the prospects looked so fine all over the eastern part of the country, rains abundant, clover plants abundant and thrifty, beekeepers were beginning to think that fortune would smile upon them again; but in June, our pivotal month in the East, it became very hot, one of the hottest Junes ever known. The lack of rain and the excessive heat during this month dried up white clover and alsike, leaving the bees nothing to work on in most of the Northeastern States because

Fig. 1.—Michigan beekeepers at summer meeting listening to an address by Mrs. Malitta F. Jensen, Secretary American Honey Institute.

sweet clover and alfalfa had not yet come on. I have been actively in the bee game for over 50 years. Not in all that time do I remember a season when there was so little honey secured in the region east of the Mississippi and north of the Ohio River, as has been the case this year.

The beekeepers of Michigan were very hopeful early in the season as we in Ohio and New York had been, but the southern part of the state fared little or no better than Ohio. Northwestern Ohio, which usually has a good crop, will now have perhaps one super in addition to a food-chamber per colony. Some beekeepers will not have even that amount, unless alfalfa yields better than is now expected. But north-central Michigan has come across not only with white clover and alsike clover honey, but with sweet clover. Beekeepers there are harvesting a crop that should satisfy any man, especially during these times, when a little means a great deal.

Fig. 2.—Mrs. Jensen in action. She is demonstrating the use of honey in other foods before the audience shown on the preceding page.

Michigan Field Meet, August 3 and 4

I have just come from attending the field meeting of the Michigan State Beekeepers' Association held at the home of O. H. Schmidt, about three miles south of Bay City, on State Route 47. It had been dry but a good rain started the night before and kept on until about noon. It appeared at first that the rain would keep the beekeepers at home, but it did not. They poured in until the crowd was larger than any previous field meet held in the state. Everyone with whom I talked had from a fair to a good crop, and the all-important question was what would the price be and what would beeswax do.

To go back a little, it seems that three enterprising beekeepers in the state of Michigan (I am not permitted to give their names) got their heads together and decided that they must have Mrs. Jensen, of the America Honey Institute, talk to them. They knew perfectly well that there were no funds available in the Institute to send her to the meeting so the three guaranteed to cover expenses if she would come; and, of course, she did.

In the afternoon of the first day she very carefully and fully explained the work of the Institute and in the afternoon of the second day she gave a demonstration. That she won the hearts of the beekeepers assembled that day is shown by the fact that $521.00 were pledged, of which amount $122.00 in cash was turned over to the American Honey Institute, notwithstanding that Michigan had already been a liberal giver, even this year. A man connected with the bottling trade

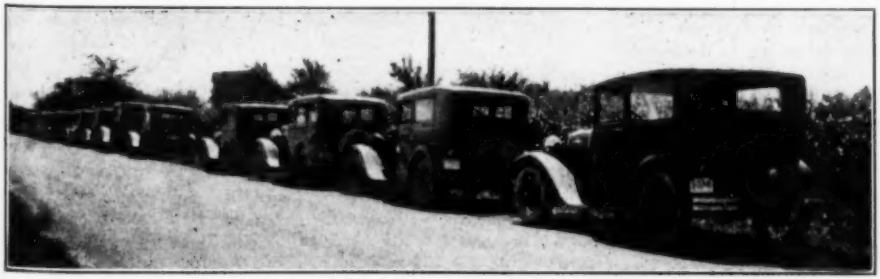


Fig. 3.—Cars parked at the roadside while the beekeepers were visiting one of the commercial apiaries in the vicinity of Bay City, Michigan.

will probably give $250.00 more. All of this was raised at one field meet in Michigan after Mrs. Jensen had explained her work.

Of course, there were other papers and addresses that day on the American Honey Institute and addresses covering various other problems connected with the production of honey, but the outstanding event of both days was the work of Mrs. Malitta F. Jensen, Secretary and Treasurer of the American Honey Institute. The pictures will give you some idea of how she was received. It was impossible to show all of the audience.

Funds for Institute Pledged by Enthusiastic Beekeepers

Following Mrs. Jensen's talk on the first day, Vice President Harold A. Albaugh, of Gowen, Michigan, in a very neat address, spoke of the work of the Institute and finished by saying: "What are we going to do about it, are we going to say that this is all very fine and let it drop there, or shall we reach down into our pockets?" At this juncture Oscar A. Schmidt, President of the Michigan State Beekeepers' Association, arose and said, "I will give a ton of honey." David Running was then asked to make a speech and he said, "No speech from me is needed. I will give, as I always have, a dollar for every ton of honey I produce." He is one of Michigan's big producers. One after another of the others arose, each stating the amount he would give. It is evident that there was an unseen force or a presiding genius that engineered this whole procedure. Secretary Russell H. Kelty denied that he was that force or genius. He insisted that not he but that other fellows did the work. It is true that there was teamwork of a very practical sort which I hope will be found at other field meets. I am glad to give the details of this because I believe it has saved the day for the American Honey Institute, provided other states will make an equal effort. Certainly Michigan has done its part.

Fig. 4.—Mr. and Mrs. R. H. Kelty. Mr. Kelty is Secretary of the Michigan Beekeepers' Association and Professor of Beekeeping at the Michigan Agricultural College. He was figuring up the pledges to American Honey Institute when photo was taken.

Fig. 5.—Left to right: Mrs. R. H. Kelty, Mrs. Floyd Markham, James Hilbert, Mrs. Hilbert, and Mrs. Jensen.

When I sent out an S. O. S. call to the secretaries of the various state associations, several of them got busy. Here is an advance report of these:

States that responded with subscriptions follow: New Jersey Beekeepers' Association, $31.60; Cortland County (N. Y.) Beekeepers' Association, $3.00; North Carolina State Association, $10.35; Wisconsin State Beekeepers' Association, $5; Texas State Beekeepers' Association, $2.50; Virginia State Beekeepers' Association, $10; Connecticut State Beekeepers' Association, $25.

Institute receivers who made a special effort to send in funds to date are: James I. Gwin (Wisconsin), $30.30; H. M. Krebs (California), $46.51; S. D. Williams (Oregon), $12.00; James E. Starkey (Indiana), $2.00; Dr. R. L. Parker (Kansas), $8.28; Geo. L. Emerson (California), $26.00.

Of course, we appreciate the fact that

this has been an off year and that other states probably can not match up with Michigan.

There was an address by W. F. Straub, President of the W. F. Straub Laboratories, Chicago, Illinois. He is a comparatively new man in the honey business, but he and his organization are coming forward in putting honey all over Chicago and vicinity. Mr. Straub outlined some of the difficulties of the honey bottling business, how beekeepers sometimes compete with themselves by destroying markets already made by well known and reputable bottlers by putting out an inferior product in the same market in competition with the product that they have already sold to the bottler.

Demonstration of Modern Extracting Equipment

On both days demonstrations were conducted in Mr. Schmidt's honey extracting room, where he has the very latest equipment, as shown in Fig. 6. It will be noted that he is one of the beekeepers who uses a turntable to hold the combs before extracting. This turntable is just the right capacity to fill one of the 45-comb radial extractors. While the big machine is extracting the honey, the operator is uncapping more combs and filling up the turntable. When full, the extractor is stopped, emptied, and refilled with the dripping combs from the turntable.

Fig. 7.—Left to right: David Running, Mrs. Running, W. F. Straub, Mrs. and Mrs. O. H. Schmidt and their two children.

Just back of the extracting outfit and toward the window, James E. Hilbert gave a fine demonstration on how to prepare cut comb honey for the market. A picture of Mr. Hilbert and his wife is shown in Fig. 5. Mr. Hilbert is not only a farmer but a fruit grower and a beekeeper as well. He owns and operates the farm formerly owned by his father, James Hilbert, who used to be a neighbor of my father, A. I. Root, up in Grand Traverse Bay Region.

A Tour Among Larger Honey Producers

During the morning of the first day

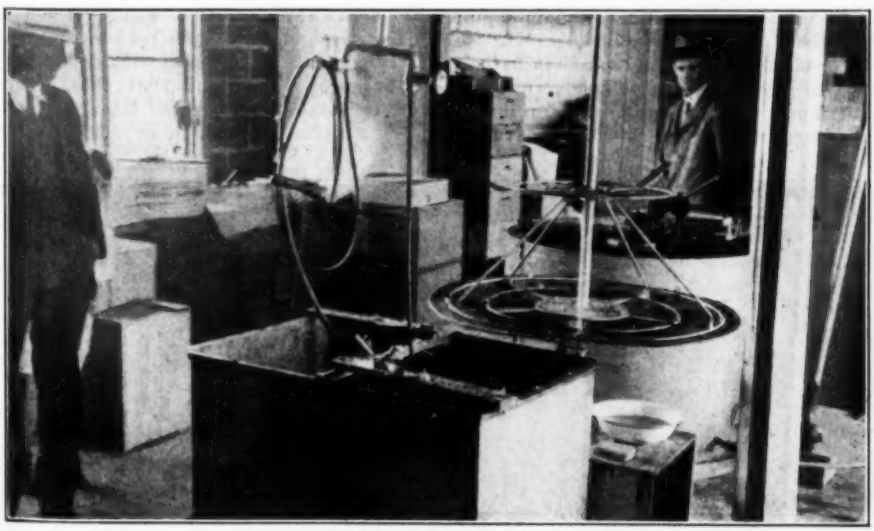


Fig. 6.—Interior of O. H. Schmidt's extracting room. Note the turntable between the cappings tank and the big extractor. It holds 45 combs, just enough to fill the extractor.

there was an auto tour, and we were all privileged to inspect the apiaries of President Schmidt, Richard Schmidt, Otto Roth, C. F. Grauer & Son, Arthur Thayer, and finally the home and business place of the Michigan Beekeepers' Supply Company, where several pictures were taken.

Several told me that this field meet at Bay City was one of the most successful they had ever had and that never before had there been such a large attendance, the number present reaching between 300 and 400—another evidence of teamwork. This field meet will go down in beekeeping history, as it set the ball rolling for the American Honey Institute in a way that will probably enable it to go through the trying period of depression.

Honey and Beeswax Prices

It was evident that a normal to a bumper crop of honey had been secured within 50 or 100 miles of Saginaw. When the beekeepers there learned that the crop had been short all over the country and that there was but little or no surplus of white clover honey in much of the northeastern section, they began to ask the question what they should get for their honey. Some of the big producers put the question to me point blank.

It is a little dangerous to make a forecast at this time of the year. I told them that beeswax had gone up and that I believed it would go up still more—how much I didn't know. The entrance of The A. I. Root Company into the manufacture of pure beeswax candles, I explained, had forced all the other candlemakers to use beeswax much more liberally than before; that the electrical and telephone business had found that the substitute for insulation purposes was not altogether satisfactory, and that they were beginning to use beeswax again.

Fig. 8.—C. F. Grauer of Saginaw, Michigan, besides one of his sky-scraper hives.

As to honey, I pointed out that the earlier Government Market Reports had not shown any gain other than that prices were becoming firmer because last year's honey had been cleaned up. I gave it as my opinion that when it was finally learned there had been a very short crop of white honey in the East, prices would assume an upward grade, especially if prices on other commodities go up. I made it plain, however, that honey is not a necessity and that some beekeepers, desperately hard up for real cash, would sell at present prices and that these early prices would affect prices later on.

(Continued on page 569.)

Fig. 9.—One of the apiaries of C. F. Grauer and Sons near Saginaw, Michigan. A good crop was on the hives when photo was taken.

Standard Equipment

There is nothing like standard equipment so that everything is interchangeable. I never did appreciate the great advantage in this till the last few years. This is how I came to appreciate the interchangeable feature:

My boys have grown to be as tall as I am, so now we buy standard equipment in the way of shirts, socks and underwear. The first one up in the morning gets the pick of the equipment and we can always tell who dressed last by the holes in his socks.

Beekeepers tell me that since we have used hives so long they are perfect and we all know just what kind of hive is best; so now we have a standard hive. Yes, that is true just like we have lived in houses so long we know what the perfect house is so all live in standard houses.

Some standard hives are about half an inch wider than other standard hives. Now when you have used frames in the wide standard, it is just heaps of fun when you come to use them in the narrower standard hive. In your hurry you crowd them in and let the self-spacers lap over each other and mash the combs together so that no bee can ever get through.

It seems we also have a double standard when it comes to top-bars. Some are long standard and some short. I wonder who ever invented that long top-bar, but do not wonder a bit that modesty prevents him from making his identity known. I should say "her" identity for it must have been invented by the stenographer or the filing clerk. I like the long top-bar for one reason and that is it is wonderful to help one develop self control and self mastery. When you are working fast or when robbers are bad and you want to shove the combs over to one side of the hive, especially when there is plenty of propolis—well, if you can't keep yourself well in hand you are just bound to say things.

When you want to force a long top-bar in place and there is plenty of propolis, that is easy. All you have to do is tap it lightly with a twelve-pound maul and presto! a great improvement takes place. The long top-bar snaps off. You drive in a ten-penny nail and you have a real hanger and spacer. When the bar snaps short off it is nice, but when it splits the top-bar half the length it isn't so hot. Anyway, our outyard became almost standard ten-penny nail hangers.

A helper said to me: "Here, you do not know how to handle these nice long top-bars. Let me show you. You first put one end in place like this. Then you let the other end rest on the edge of the hive and with the aid of your hive tool you pry it endwise till it goes into place like this." He gave it a pry when it went into place right enough, but he split off the top of the hive at the other end, making a fine top entrance an inch deep by the width of the hive.

One needs a twelve-pound maul to handle some of the double-standard hives.

When these long top-bars are left in the hive a year, beekeeping takes on the aspect of what it was before the days of Langstroth. I will bet Danzenbaker turned over in his grave when that long top-bar came out. If he didn't it is because he is such a sound sleeper that Gabriel will have to put an amplifier on his trumpet before he can get any response.

Another thing that is becoming standard is the cellophane wrapper. When you produce nice comb honey you want the customer to see it and you put it up in plain cellophane, unprinted. But when you have poorly finished sections with lots of uncapped cells near the wood, you

(Continued on page 570.)

From the Field of Experience

REDUCE SWARMING BY BREEDING

Great Advantage of Rearing Queens by the Grafting Method

For many years excessive swarming prevailed in our bee yards. The bees would swarm early and late, from before the opening of fruit bloom to October frost. Queens were purchased from different breeders and every feasible method of control was tried, and yet they swarmed. During all of this time we were using cells and rearing queens from these swarming colonies.

A few years ago we obtained half a dozen queens from a breeder advertising a northern-bred, non-swarming strain of bees. We considered the non-swarming feature just some more of the "hooey" which constitutes the greater part of most advertising, but bought them because they were said to be of good color, gentle and good workers. I will now say that they have lived up to their reputation in all respects.

The best of the six queens were used as breeders in rearing some 150 queens for our own use the first season and about the same number each succeeding year. The result has been fewer swarms. This year there has not been one issuing from over 150 colonies. Of course, the weather and other conditions may have had something to do with it.

In the last fifty years great changes and improvements have been brought about in various kinds of live stock, as in cattle, horses, poultry and the like, through careful selection of breeding stock. I see no reason why the so-called swarming instinct can not be bred out of bees by proper selection. If swarm cells are used, it merely tends to intensify the instinct, and if one wishes to eliminate this nuisance as far as possible, it is essential to breed solely from non-swarming colonies.

We no longer rear queens from cells taken from swarming colonies but graft from best stock and those that do not swarm. I believe that the queens thus produced are fully equal if not superior to any reared under the swarming impulse, and with the elimination of this propensity, more honey per colony can be produced. By grafting cells from best stock we are likewise enabled to select bees that are superior in other respects, good workers, good color and to a considerable degree, non-stingers, an improvement that can not be brought about by using queens reared from swarm cells.—E. S. Miller, Valparaiso, Indiana.

ANOTHER WAY TO SELL HONEY

Clever Plan Brings Honey to Attention of Consumers of Entire Community

Last September, one of our leading newspapers brought a famous cooking expert to our town to conduct a cooking school. Beforehand, all merchants or firms likely to be interested were solicited, and each paid for an advertisement in the paper. This entitled each advertiser to a display booth at the school.

We put up our honey booth carrying out a color scheme of yellow, black, and white. We sold honey and distributed recipes. The expert used good honey recipes before hundreds of women (and some men) eager for new recipes, at each session — afternoon and evening — for three days. We furnished her with honey for all recipes. Lucky numbers drew prizes of both extracted and comb honey at each session. The following week all recipes were published in the newspaper.

Through this medium we reached hundreds of people that we might never have made contact with personally. If we beekeepers can succeed in reaching and interesting the women in cooking and baking with honey, how tremendous will be the increase in the amount of honey sold.

Great interest was shown by these women. Many came to our house to buy a little honey to try these recipes, only to return many times. To these new customers, we gave more absolutely-proven, good recipes which we had worked out. Just any recipe to use honey works much harm to our cause by tending to discourage women in the use of honey.

We have been repaid many times for this comparatively small investment. Now is a golden opportunity to interest women in cooking and baking with honey for more women are doing their own baking

now than for many years past. Let's do our part in making honey a habit with these women!—Mrs. Benj. Nielsen, Aurora, Nebr.

VAST REACHES OF THE UNKNOWN

Rich Fields for Research in Beekeeping Problems Still Remain Unexplored

To only a few beekeepers is it the privilege to leave to posterity a legacy of knowledge from the vast reaches of the unknown. Those pioneers like Langstroth, Dzierzon and others, who were clever and persistent enough to discover hidden facts about bees and honey, are honored names among beekeepers who follow along the way already discovered.

Most beekeepers pass unconcernedly along the road of bee-knowledge that leads past corner posts discovered by these determined seekers after the hidden truths locked up by nature in the beehive. We accept the results of their toil as though it had always been known. And then, quite naturally, we fool ourselves into thinking that we know most everything there is to be known about bees.

But other hidden truths are still awaiting the discovery of the fact-seeker scientist, be he an humble back-lot beekeeper, a commercial honey producer, or the observer in some experimental station. Such students know the absorbing pleasure of close acquaintance with bee habits. The pathway of their search is strewn with many discarded ideas, false and half true, that failed to bring forth the desired results. Discouragement often overcame them, as they doggedly carried on along the only road that leads to the unlocked secrets. And then, finally, one little gleam of knowledge led on to a fact that we readily accept now, because somebody once dug it out by scrutinous application to an idea.

What a privilege it is, what a blessing to bestow upon oneself and others, to search out some hidden truth from the vast reaches of the unknown! We think great progress has been made with bees and honey, and surely this is true; but who knows that hidden in our blindness there may be other facts of equal or even greater importance. We should carry on as did those whom we honor for their part in this great quest.—Bruce L. Morehouse, Montevideo, Minn.

MOISTURE IN HONEY

A New Method for Determining the Exact Percentage of Evaporation

A more satisfactory method of determining the moisture content of honey and other viscous materials than has been used in the past apparently has been perfected by E. W. Rice and P. Boleracki, National Sugar Refinery, Yonkers, New York, according to their report in Industrial and Engineering Chemistry, January 15, 1933. Their method permits the complete drying of viscous materials in a very short time and with a comparative ease of manipulation. The method finally adopted by them after numerous trials is as follows:

Two silver plates 10 by 15 cm. and 0.003 inch (0.007 cm.) in thickness are cut with rounding corners and provided with a light skeleton frame of aluminum. One plate is laid on the table and a drop of sample of about 0.25 to 0.3 gram placed about 5 cm. from one end. The plates are then placed together with the sample between and rolled toward the far end a few times to make them stick together. They are then placed in the frame and weighed to obtain the weight of the sample taken.

They are taken out of the frame and placed upon a piece of warm (60° to 70° C.) plate glass and rolled with a rubber-faced roller, such as is used to mount photographs, to maximum distribution, and then finished off with a wooden roller whereby considerably more spreading can be attained. With a little practice a proper spread should not require over two or three minutes. It is possible to feel the material push ahead of the wooden roll, and the proper spread can be accomplished without separating the plates. It is advisable to separate them partly to check the spread until one becomes accustomed to the method. The rubber roll should be longer than the plates are wide, and the wooden roll 1 to 2 inches (2.5 to 5 cm.) in length. The wooden roll must be used only after the rubber roll or the plates will begin to dish. Results indicate that if constant weight is not attained in 2 to 4 hours the rolling was not sufficient.

When no further spreading is possible, the plates are pulled apart and placed in the vacuum drying oven, which is heated to 70° C. When it is necessary to weigh, they must be placed together as quickly

as possible with the sample side in, and slipped into the frames and cooled in a desiccator. Cooling as well as heating is very quick. The final most satisfactory equipment was obtained from Eimer & Amend.—J. E. Eckert, Davis, California.

DROUTH-RESISITING HIVES

Greater Reserve of Stores Needed When Nectar Is Scarce

The importance of reserving an abundance of stores for each colony has been brought home to me more forcibly than ever this summer during the drouth.

When we first tried out the food-chamber hive in The A. I. Root Company's apiaries about ten years ago, we used the shallow food-chamber. A few years later we began experimenting with the deep food-chamber. In comparing the merits of the two sizes, we have found that, during normal seasons when we have been favored with good honey flows, colonies in shallow food-chamber hives were practically as strong in bees at the beginning of the major honey flow and stored as much surplus honey as colonies in deep food-chamber hives.

However, during an abnormal season when unfavorable weather for nectar secretion prevailed during the spring months, colonies in deep food-chamber hives would come up to the main honey flow stronger in bees and would store more surplus than colonies in shallow food-chamber hives.

Deep food-chambers hold 20 or 25 pounds more honey than shallow food-chambers. This extra amount of honey comes in handy during a dearth of nectar in the spring, because it tides colonies over a possible dearth of nectar and enables queens to continue normal egg-laying right up to the beginning of the major honey flow.

But that is not all: During a drouth, such as we are experiencing around Medina, our colonies in deep food-chamber hives are now stronger in bees and have more stores than our colonies in shallow food-chamber hives. This means that the stronger colonies will be in better condition than the weaker colonies to gather nectar from the fall honey plants and also in better condition for winter.—Jack Deyell, Manager of The A. I. Root Company Apiaries, Medina, Ohio.

IMPROVING INTRODUCING CAGES

Keeping Old Queens Until Sure New Queen Has Been Accepted

Often when introducing queens, especially if the ordinary mailing cage is used, they are not accepted by the bees. In the hands of an experienced beekeeper, this type of introducing cage is fairly satisfactory, but for those who do not thoroughly understand the rudiments of queen introduction I consider them a curse. It is now generally believed and conceded by some queen breeders and shippers, that the instructions printed on their mailing cages are either inadequate or partly erroneous. The primary fault with them is the cardboard covering on the candy hole which reads, "Do not remove." In 99 per cent of the cages, there is more than sufficient candy remaining to insure safe introduction. In practically every case, therefore, the cardboard is detrimental, in that it imprisons the queen until conditions within the hive are no longer favorable for safe acceptance. Some cages still carry the words, "Place candy end down in the hive." If you must insert your cages in a vertical position within the hive, by all means arrange them so that the candy end will be up, otherwise dead bees may drop into the exit hole and block it. It is much safer to have the candy run over the queen (although this rarely happens) than to have her unduly imprisoned.

Anyone can alter the ordinary mailing cage to make it an ideal introducing cage. Simply remove the tin that covers the hole opposite the candy end and tack over this hole a small piece of perforated zinc queen excluder. The hole itself should first be filled with candy. If this is not available, simply tack two thicknesses of newspaper over the excluder as a precautionary measure. Before introducing, remove the cardboard which covers the candy hole.

I have used the latter method of introducing for the past two years without any losses, whereas formerly my losses were considerable. Those who use the regular mailing cage without altering it for introducing will continue to have some disappointing experiences. By far the greatest number of these losses occur among beginners in beekeeping who adhere religiously to printed instructions. They dispose of the old queen at the time of in-

troduction, only to find later that their hives are queenless and that they have no queens with which to replace their losses. They again send for queens, with the result that they are received and introduced at a time when their queenless colonies are in an improper condition to accept the new supply. By the time these hives have queens laying heavily, a considerable time of queenlessness has elapsed with the resultant loss of brood and colony morale; it is a disconcerting experience for a beginner, which could have been avoided, at least in part.

When you wish to introduce a queen in an unmodified shipping cage without the zinc feature, do not destroy your old queens; retain at least some of them in cages. These cages with queens can be left in their respective brood-chambers until the young queens are successfully received by the bees, when they can be disposed of. If your young queens are not accepted, you have but to release the old queens which will continue to head their colonies until you can secure others to replace them.

I have successfully introduced every queen attempted in this manner, but believe that in some cases, especially when the old queens were laying heavily before caging, the newly introduced queens, upon their release, may be met with aversion by the bees. For this reason I suggest that the old queens in their cages be placed in the uppermost super of each hive, in which case no possible harmful effects will be felt by the queen below. Caged queens can be kept in this manner indefinitely, although it will naturally decrease their life and fecundity.—A. P. Gard, Milwaukee, Wisconsin.

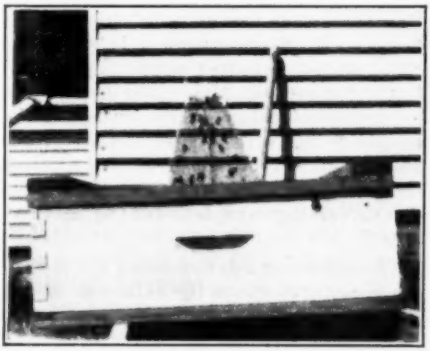
WIRE CONE BEE-ESCAPE

Bees Fail to Leave Super Above an Ordinary Escape Board

As a beginner in beekeeping, one of my most difficult problems was getting the bees out of the supers when taking off honey. True, I had a bee-escape board and the directions were simple enough. All you had to do was raise the supers and put the escape-board underneath and in 24 hours or less practically all the bees would be out of the supers.

I waited 24 hours and hardly a bee had left. After 48 hours the supers still buzzed with bees. The third day, after smoking them well, I took the frames out one at a time and brushed the bees off and handed each frame to my wife, who stood inside the screen door of the house.

Dr. Miller's book, "Fifty Years Among the Bees," describes a tent bee-escape



Cone escape for clearing supers of bees after supers are taken from hives.

made on a piece of canvas. But for this windy country it would have to be weighted down. So I made one of screen wire nailed on a board, and it works perfectly. I do not use smoke to start the bees out. I find it takes them about one hour to start coming out and in another hour nearly all the bees will leave. The illustration shows how it works.—O. D. Sherfy, Waynoka, Oklahoma.

IMMUNIZING AGAINST STINGS

Immunity Built Up by Stings in Graduated Doses Under Controlled Conditions

Often to the beginner in beekeeping the directions given do not seem complete enough to fit the circumstances under which the work must be done. He is told what to do, but too often no mention is made as to what the bees will be doing at the same time, and so he becomes panicky unnecessarily. Much has been written about preventing stings, and there is found mention of the fact that one becomes immune to stings after being stung enough; but what constitutes enough?

In some books for beginners an indefinite program is given for immunizing one's self. As a beginner in beekeeping, I found I was very sensitive to stings. My work was carried on without the use of

gloves until one sting on the back of the hand prevented the closing of the hand for three or four days. A sting in the palm caused the swelling to go between the fingers and extend to the wrist on the opposite side from the sting.

The local physician advised immunization or getting rid of the bees. He attempted to get the material from supply houses to do the immunizing in graduated doses under controlled conditions, since I would not get rid of the bees; but no supply house could furnish the material. One agreed to make it for ten dollars if the desired quantity of stings with the poison sacs attached were dissected and sent to them. Nothing was left but to use live bees.

The physician advised using the side of the upper arm where the skin was moderately loose. In carrying on the experiment the bees were picked up by the wings and placed on the arm. After the use of the first bee, the physician advised waiting a week before using another, because of the amount of the reaction. One bee was used each week for six weeks, and at the end of that time one sting produced only slight swelling. Two bees were then used for three weeks, then three for two weeks. After the sting was pulled from the bee it was left only an instant in the first two weeks; after that it was left until the pumping motion was almost stopped, then pulled by taking hold of it with the finger tips. This, of course, forced the poison into the wound.

That immunity has been built up can not be doubted, but the question of its permanency remains to be answered.—C. R. Walker, Gunnison, Colorado.

COMMENTS ON CURRENT ITEMS

A very interesting article by Dr. W. Ray Jones, page 462, caught my attention. While his article is rather scientific, he very kindly clothes his thoughts in language a layman can easily understand. Dr. Jones tells of a honey salesman in Seattle who sells what he calls "wild honey," which the dealer claims is something highly prized. The doctor says it looks like honeydew. A man that would work a game like that, I would not like to call a liar, but it looks to me as if he is quite capable of handling the truth with penurious frugality.

We sell honey to tourists from many states of the union, and are frequently asked by those from New York about the orange blossom honey that a certain party in Buffalo is selling for $6.00 a gallon. We expect to learn very soon all about the truth of this story and shall pass it on to some American beekeepers who will put a crimp into such a dishonest business. From what my customers have been telling me, he is selling a lot of it.

I see by the August issue that the great drouth is general in the United States as well as in Canada. Here in the Niagara District, we have had the longest spell without rain for 80 years. There are a few localities, notably in the vicinity of Niagara Falls, 22 miles away, that have had more rain, but to the south and west it has been very dry. In this immediate locality the thermometer ranged from 85° to 103°. The alsike and white Dutch clover that was in full bloom and abundant, quickly turned brown, and yields of honey will be very low.

The idea that alfalfa does not yield well until after five years when the roots are well established in the subsoil is new to me. We never got much from alfalfa. It is quite likely that our soil may not be the best for alfalfa as it seems to need re-seeding after about five years. Mr. Emmanuel Beam, a four-year student and graduate of the Ontario Agricultural College and a successful farmer in our district, tells me that with him on clay loam and clay subsoil, alfalfa pulls about all the moisture from the subsoil in five years which may account for the fact that it can not be relied upon at least in this locality for a honey crop.

While at the big field day at the Larkin farm No. 2 on the Niagara River Boulevard, Queenston (a beautiful spot by the way) Mr. F. W. Krouse showed us a sample of water-white honey of which he has harvested 140,000 pounds this season. He is one of the few Canadian beekeepers who has a good crop.

We had a pleasant call from Mr. David Running of Michigan the other day. He has apiaries in Michigan and Alabama. He reports a crop of 80 tons, which he says is away below his average in a good year.

Our customers are a cosmopolitan lot. Quite a number are Polish people, and here is a Polish recipe for a cold. It is simply equal parts of honey and horseradish. Rather a hot proposition to swal-

low, but probaby the honey may modify the sting of the horseradish.

That reminds us of a story of an old chap who said to his friend, "Say, Tom, what do you claim is the secret of your great age and wonderful vitality?" "Well," said he, "you see, Jack, I have always voted the Democratic ticket and drunk corn whiskey." "Ah," said Jack, while stroking his beard, "one kind of pizen neutralizes the other, I see."—J. F. Dunn, Ridgeway, Ontario.

SPINSTER JANE SAYS—

Since this apparently is a thrill-seeking age, let me suggest that all women go into beekeeping. That will give more real thrills than any business I know of, unless it be operating an aeroplane of which I know nothing, but which seems to be growing exceedingly popular with the more venturesome ladies. There is an uncertainty about the bee business, often great surprises, but always thrills. You get your first when you own your first colony. Again, when you go through that colony and first discover that elusive queen. Again, when you find the eggs filling every cell.

There are ups and downs in the business of course. Can you tell me of any work in which they do not occur? And I am going to tell of a few of my own in this new, thrilling work.

From my two packages of bees last year we put four in winter-cases, one rather weak. Early in spring a severe storm blew the cover off this case. The boy, in remedying this, dug deeply enough to hear that all were alive, yet, later when we took the hives out, only one strong colony, and one very weak, queenless colony, remained. In the others there was mould everywhere. I was half ashamed to tell this to you successful folk, postponing it until fall. Now it is off my chest and I feel better. Had I taken the dead bees that clogged the entrance away earlier, I believe results would have been quite different, as these hindered free ventilation.

After this sore disheartenment, I resolved to try for colonies, rather than for honey this year, and, as a result, I have six fine colonies now. All of these will have a chance to build up nicely before cold weather sets in again. They can store honey in abundance, too, for their food supply, as sweet clover fields are in bloom again, and there is a good big acreage in buckwheat in our community. Both clover and buckwheat fields are droning musically these days, like giant hives.

Queen Mary, aping up-to-date, modern, ladies, has grown air-minded. Her first flight, I believe, was a solo one. Last year she flew low the second time, but this year! She and her ladies alighted on a big branch in the very tip top of a tall tree! The ladder would not reach her, and the good man of the house would have none of the bee-trap. The last swarm he tried to use that on, alighted mostly, on his own head, and that head was but scantily protected against such an onslaught. On emerging from the fray—well, his own mother would never have recognized her child.

John, this time, armed himself with a saw, climbed higher, and got busy. Snap! The branch sagged, hanging by a thick strand. The bees got busy, too. Three irate ladies landed on one unprotected hand, and the sawyer came hastily down the ladder, talking volubly to himself, as angry men often do when there is no woman near conveniently to say such things to. He plucked three vigorous, healthy stingers from his hand, said a few more things under his breath, and went up again. This time he planned bringing the swarm down in instalments, a little down at a time, and he succeeded. Twig by twig, they came, were shaken on the sheet in front of the newly-equipped home, persuaded to enter, and soon it was "all quiet on the western front."

But not in the house was there quiet. For a couple of days we women ducked for cover on his hasty approach, and now he can tell of the exploit without rancor. You see it gives him a chance to air his views on women and their utter uselessness in some corners.

Say! It's a Marlene Deitrich outfit for me, except that my unmentionable nether and also upper garments will be combined and have zipper bee-excluding fastenings.

Next month I hope to tell you of our experience with a certain striped gentleman, Jimmy Skunk, no less.

Here is a conundrum for Gleanings: What quotation from Shakespeare best describes the attitude of a woman, uncertain about going into the bee business? Answer—"To bee or not to bee, that is the question."—Spinster Jane.

From North, East, West and South

SOUTHERN CALIFORNIA.—One extensive beekeeper who operates some 2500 colonies is reported to have purchased 500 more recently. He operates in a section where some honey is produced every year. An extensive grower of citrus fruits once said to me: "Study, understand, apply yourself, and become a big man in your own business." Beekeeping is no exception. We hear reports of much increase being made both by the little fellow and the hundred-colony beekeeper. Optimism is a good word to keep in mind.

After the orange, what? Disappointment in many cases. Wild buckwheat and sage that cover by far the greater proportion of ranges where beekeepers move after orange bloom, have proven a disappointment in most cases. A fill-up for winter is the best many beekeepers now hope for. A few will take off a little honey, but more will leave it on until spring rather than take chances of colonies getting short.

Combs of Honey Saved Until Next Spring Can be Used Profitably in Making Early Increase for Next Year's Honey Flow.

What wonderful nuclei one can make in early spring, with a ripe queen cell, a frame of emerging bees, and some of these frames of honey. One can practically say that nuclei made in this way should store one to three supers of honey with little or no danger of swarming if the season is favorable. I have practiced this method of making increase and like it the best of any I have ever tried.

Occasionally a buyer calls but there does not seem to be any urgent demand for honey. While they are ready to buy, it is at a price few beekeepers are willing to accept. Beekeepers who are able to finance themselves do not seem to be in any hurry to sell, feeling that, with the advance in price of so many commodities, honey of necessity seems destined to follow suit. Beeswax prices seem firmer than for several years and range around 12 and 13 cents.

Premium lists for our fairs are now in the hands of the exhibitors and our old dependable Charles Kinzie is busy getting up a creditable exhibit representing Riverside County beekeeping. Charles never fails to bring home the bacon, and 1933 will be no exception. If every county had a man who took the interest in these things that Kinzie does, it would certainly boom the advertising of honey.—L. L. Andrews, Corona, California.

NORTHERN CALIFORNIA. — It is easy to say that we have "57 varieties" of honey-crop conditions in this part of the state and it makes us wonder if the final report will not show that the crop is lower than last year. One beekeeper comes into our office with a glowing account of the fine crop he is assured. Just as he finishes with, "It is my best crop in ten years," his neighbor drags himself in to tell us that his bees are not doing a thing, have not done anything during the entire season, will starve if not fed, and that he is not going to feed. Thus it goes on day after day.

An inspector comes in, and we ask him to explain the above conditions. He hesitates but finally answers—"The conditions as described actually exist. Weather and climatic conditions cut some figure, but I can't help but think that the two classes of beekeepers we have, have an important part in the summing up, with better beekeeping showing its effect in the better crops."

Beekeepers Who Secured Good Crops Read the Bee Journals and Belong to Associations, While Most of Those Who Had Poor Crops Do Not.

This was enough to cause us to make further investigation and we found, strange as it may seem, the following results, after calling on an equal number of beekeepers having good crops and those having poor crops, climatic and weather conditions being the same. Of the former class 100 per cent were members of the state or county association and many of both. Eighty per cent were readers of beekeeping literature and bee journals. Of the other class, 40 per cent were members of associations, one-half of them being in arrears with their dues. Less than 15 per cent read books or subscribed to magazines. We did not investigate to find how many were in arrears on their journals. We make no claim that

the poor beekeeper does not occasionally get a crop, but we do claim that the beekeeper who keeps bees better is surer of a crop.

We have many encouraging things for the future of beekeeping. One of these is the fine way our beekeepers are co-operating with H. M. Krebs in charge of apiary inspection. The result is that American foulbrood is on the run in California. The last report of our State Department of Agriculture on the subject would be encouraging to all who are still "controlling" disease.—Cary W. Hartman, Oakland, California.

UTAH.—Bees in northern Utah did not reach their peak of strength until the middle of July. It mattered not how much honey a colony had, the scarcity of pollen kept them from breeding at their best. So, they were not able to take advantage of the first honey flow. The loss of queens and supersedure proved another abnormal seasonal condition.

There was a fair up-and down honey flow during July, but a violent electric storm the last of the month brought the yield down from 10 pounds per day to 2 pounds.

Bees Work on Stunted Dry-Land Alfalfa While Thrifty Watered Alfalfa is Also Available.

There has been no rain for 60 days. The dry land afalfa is badly dried up, but some of it is blooming when from four to six inches high. What seems strange to me is that the bees seem to prefer to work on it rather than the luxurious bloom on watered land.

There has been no swarming to speak of this season and colonies have finally built up to very good condition. The working force is still struggling against the high, dry winds (which also are unusual) to get one to three pounds per day. There has been but little extracting yet. My colony on the scales weighs 225 pounds—possibly 80 pounds of surplus.

Comb-honey colonies may possibly finish two cases. There seems to be but very little comb honey produced in all this western country.

Prices have not been established yet. As you know, it is much easier to drop than raise them. Two carloads have been bought at 4½ cents per pound, but there are some inquiries offering 5 cents for white honey. Prices on comb honey will surely advance later as the markets are bare and there is but little to offer.

Our government is kidding itself that the budget is balanced, but the best way for us beekeepers to balance the budget is to see that every colony has plenty of winter stores, a good queen, and good care the coming winter. We must keep our business in the foreground for honesty and fair play. The little blue eagle is a very popular bird just now, but I opine that in the months to come there will be found some vultures among them in all branches of business but ours.—M. A. Gill, Hyrum, Utah.

ARIZONA.—Locally the bees have remained strong and gathered considerable honey since the main honey flow stopped, due to rains. Our rains have been very scattered and irregular. Some areas have had fine rains one after another, while other places have had hardly any. Generally they have been rather light.

Bees have continued to gather pollen and have more brood than usual here for the summer time. Should we have fair rains through this month there will be some honey this fall, at least plenty for the bees to fill up well for winter. I have further reports that bees are still filling up from alfalfa in the Salt River Valley.

Honey has been moving out of the hands of the producers rather rapidly, perhaps due to the uncertainty of conditions. Many were rather uncertain as to whether conditions were going to improve or go backwards again. Some sold their honey just as fast as extracted. Prices received were considerable better than a year ago. Most people hope that the recent improvement will be permanent, though it is still very uncertain.—Leslie Wedgworth, Oracle, Arizona.

WYOMING.—The present season has been about as dry and hot as any on record for this state. I have just returned from a trip through the state where I found conditions looking pretty tough for the beekeepers in most sections. In Fremont County where there is a fair amount of water for irrigation, the hoppers are bad. In other counties hoppers are bad, too, but most of the bee pasture has been burned out by severe drouth. Even the mountain ranges are so dry that stockmen are moving off the summer ranges a

month and a half earlier than usual. A good soaking rain would be a blessing, but unless it comes very soon it will be too late.

In Sheridan County there is a combination of drouth and hoppers and things look very bad there. Beekeepers there report that they have not had any swarming this year, and that the bees have been loafing a lot. While I was there, bees were snooping around the honey houses looking for crumbs.

Yesterday, August 6, I drove diagonally across the state and the entire drive of 440 miles covered country very dry and hot. Here at Laramie things look green and fresh compared with any other section through which I passed. The honey flow here is good now, and we are extracting some beautiful honey. We probably shall not have much, but, like every producer, we will have the best. Beekeepers are a great lot. When one visits them at a time that things are going bad with them, one can't help admiring their genuine optimism. If this year is bad, they look ahead to next year with hope for better things.

Local honey sales are slow but we are considering boosting prices. Other sweets are going up, and honey should enjoy a price boost, too.—C. H. Gilbert, Laramie, Wyoming.

MANITOBA.—At this date, August 3, I know but little more about the honey crop than I did at the time of my June report. Some parts of the province have had more rain than they could profitably take care of, while other parts are so dry that great cracks appear in the soil and the plant covering has long since lost every vestige of green. A few have reported from 100 pounds to 200 pounds already extracted but I hear of some that have not yet gathered enough for their winter requirements. Grasshoppers are bad in many districts.

We have had some well attended field days. Our principal meeting was held in the apiary of St. Joseph's Orphanage, Otterburne, on July 20. Seventy-one automobiles were counted and 315 persons in addition to those whose homes were on the premises. Hon. J. D. McGregor, Lieutenant-Governor of the Province of Manitoba, who owns 750 colonies of bees, was the principal speaker. The neatness of the arrangement of the apiary at the place of meeting was commented upon by all, and Bro. T. Pineault, apiarist, was complimented on his zeal and enthusiasm in honey production.

The Governor-General Has Opportunity to See Large-Scale Honey Production in an Excellent Honey-Producing Region.

Today I read of the tour of Lord Bessborough, Governor-General of Canada, through eastern Manitoba. The following comment appears in the Manitoba Free Press regarding his itinerary: "At Otterburne, His Excellency is to have tea at St. Joseph's Orphanage, which has one of the largest apiaries in Canada. Driving through that section of the province, he will see farms that are known to have in the aggregate what has been called the largest collection of beehives in North America. The trip from Otterburne will be by way of St. Agathe, calling for arrival at Government House at 8:30 A. M."

Last week I had the pleasure of visiting the Saskatchewan Beekeepers' Convention in Regina. There was a splendid attendance at this meeting. The report of Prof. Pugh, Provincial Apiarist and Association Secretary, showed a paid-up membership of over 500, which says a lot for the interest in beekeeping under his management. Saskatchewan and Alberta both expect large honey crops this year. Anyone who has in mind that western Canada is a cold country should have been at that meeting. On Wednesday the thermometer registered 100 in the shade, and on Thursday rose a little higher than that. There were many visitors from the States in Regina on those days as the World's Grain Exhibition was in progress. I did not hear any of them complain of feeling cool.—L. T. Floyd, Winnipeg, Manitoba.

TEXAS.—In compliance with the request of the Federal Recovery Commission, E. G. LeStourgeon, Chairman of the Legal Advice Committee of the Texas Queen Breeders and Bee Dealers' Association, and the Texas Beekeepers' Association, called a meeting at San Antonio July 15, at which time a code along the lines asked for by the Recovery Administration was adopted. T. W. Burleson, Waxahachie, was elected delegate to a called meeting of the Southern Beekeep-

ing Conference held at New Orleans July 18, at which time the codes presented by the organizations of the eleven states making up the conference were amalgamated into a general code for the southeastern states.

Weather such as has occurred during the month of July, could have happened only in a state with such an enormous area as Texas. Parts of central southwest Texas suffered a drouth of 47 days' duration, which culminated in heavy rains the last week in July. Other parts of the state were under flood conditions almost the entire month. A large number of honey plants yielding nectar in the middle of late summer failed to appear. Cotton in most sections has yielded normally. With the coming of the heavy general rains throughout the state, the prospect for heavy fall brood rearing and optimum condition for honey plants make the prospect for the crop of 1934 quite bright.

Some of the record honey flows are interesting. One large beekeeper in the mesquite-cotton district reports that a hive on scales gave him an average of two pounds per day for 44 days, the highest on any one day being four pounds and lowest one pound.

The Texas Beekeepers' Association held its fifty-sixth annual meeting at College Station, July 24 and 25. This meeting was marked by a light attendance of commercial beekeepers and a heavy attendance of beginners or owners of a few colonies. This sudden interest in beekeeping is brought about by the back-to-the-farm movement which is very strong throughout Texas. President Roy S. Weaver, Navasota, made the first of a number of inspiring talks to the beekeepers. T. W. Burleson defended and plead for the American Honey Producers' League and the American Honey Institute. He made many friends for both organizations and the beekeepers promised their aid. A report on honey crop conditions brought out the fact that central southwest Texas was about the only part of the state making less than one-half a normal crop. East Texas reported the best crop in years as also did the Gulf Coast counties. A careful and conservative estimate from the reports given by 40 beekeepers scattered over most of the state, indicate that this year Texas will make 75 per cent of a crop.—H. B. Parks, San Antonio, Texas.

KANSAS.—The honey crop prospects at the beginning of the season were not very bright. Beekeepers in Kansas expected nearly a total failure. This was due to the hot and dry weather. June was a record breaker for high temperature and dryness. In spite of this, in some sections where soil moisture was sufficient from previous rains in the spring, beekeepers have obtained nearly a normal crop of very fine honey. This honey is white and of extremely good body.

In south central Kansas in the Arkansas River Valley region, the beekeepers have just slightly more than enough honey to carry the colonies through the winter. Just east of this region colonies are averaging from 70 to 100 pounds surplus and even higher as one progresses eastward. In the northeast section, the crop is somewhat spotted. In some areas there is 100 to 150 pounds average surplus as against 100 pounds surplus in other places.

Comb-honey Producers Have Produced Extracted Honey This Season on Account of Poor Prospects in June.

The larger as well as some of the smaller producers who have been in the habit of producing comb honey, do not have any comb honey this year. Because of the weather conditions and the poor prospects for a honey crop, there was no preparation made for producing comb honey. Beekeepers did not care to chance placing comb-honey supers on the hives during the extremely hot, dry weather. Instead they placed extracting supers on all of their colonies. Many beekeepers were surprised in the production of extracted honey when the conditions were so unfavorable. Chunk honey is extremely scarce in the state.

The hot weather and dryness was broken during the early part of July by a heavy rain in the northern half of the state. Following this there were several lighter rains which improved soil and plant conditions considerably. These rains came before the white sweet clover plants had lost their leaves. The plants have been blooming profusely again. At the present time there is a good honey flow from white sweet clover. In other regions there is a weak honey flow from this plant which enables colonies to store a slight surplus.—R. L. Parker, Manhattan, Kansas.

NORTH DAKOTA.—Beekeeping, along with other branches of agriculture, has suffered on account of the severe drouth. According to the local U. S. Weather Bureau, the rainfall for July was almost two inches below normal for the month and August to date (August 9) has not improved the situation.

In the southern part of the Red River Valley and over a large part of the adjoining country, the honey crop has been almost a complete failure. The writer, in company with a federal entomologist, made a trip through this area recently and noted that heat and drouth had taken upwards of a 75 per cent toll of the various crops, with the exception of corn and potatoes which had suffered less injury.

In order to Secure a Crop, Many Beekeepers Were Compelled to Move Their Apiaries One or More Times.

Beekeepers of this region were obliged to move their apiaries considerable distances to find good bee pasture, or else let them stay where they were to make a bare living or starve. A few had the misfortune of having to make more than one move before finding satisfactory locations for the balance of the season. In practically all of the moving which has been done during the past season, no complaints have been received of beekeepers crowding in on one another's territory.

In general, the conditions in the northern part of the state have been fairly satisfactory for honey production. The heavier rainfall and greater acreage of sweet clover account for the better conditions. The yield of honey in this area, which is of fine quality, however, will be much less than for recent years. A conservative estimate of the North Dakota honey crop, I believe, would place it at about 50 per cent of normal.

It is encouraging to note that honey prices are on the up-grade. One local buyer who has occasion to handle many carlots of honey per season, tells me that he is paying a premium of one cent per pound over last year's price.

With the shortage of rain this season, beekeepers of this area are expressing some real concern for the coming year's crop outlook. Should plenty of rain be had between now and the end of the season, it will probably have reason to dispel their fears. However, should the drouth continue, it will have a very damaging effect on next year's prospects.—J. A. Munro, Fargo, N. D.

SOUTH DAKOTA.—If any part of our honey season is to be up to normal, it is yet to come. Prospects for a good flow through August seem fair considering recent rains. In many localities June was a knockout blow with colonies very little stronger, and in some instances in poorer condition at the end of the month than at the beginning, due to intense heat and grasshoppers. Some colonies during July stored as much as 100 pounds surplus, while many others stored scarcely any, having spent the month building out of a weakening condition. All told it has been a difficult year with resulting problems in introducing and mating queens.

We have reason to believe that the bee population of the state is at present on the decline, judging from local conditions and distant reports. The last couple years it has been about all the large producers could do to hold their own while smaller ones have been discouraged to the point of allowing the sideline to slip through their fingers.

Although nature has seemingly been in revolt, I believe it wise to faithfully consider her work as perfect and believe that only mortals are at fault. At least, therein lies a path to progress.

Intermingled in our melancholic dirge is one lilting note: Demand is picking up with a small raise in price. Packers are more anxious to talk honey and some are willing to place contracts at a specific price for later delivery.

In talking to quite an extensive producer the other day he remarked about an informal meeting he had had with two other producers late last spring. Their discussion, of course, took up colony management as one of them complained about his excessive winter loss, nearly 50 per cent. One of those whose loss had been virtually nil, and who incidentally requeens systematically each year, said that he believed the trouble was simply one of old queens. The one who suffered the heavy loss was inclined to the opinion that older queens were more prolific than young ones, therefore retained them longer. To which it may be said that although old queens frequently head the stronger colonies, when they finally do fail it is often too late to save the colony.—J. F. Norgren, Junius, South Dakota.

IOWA.—The white-clover honey flow closed with hot and dry weather, but when the dry weather set in the flow was already drawing to a normal close. The beekeeper who had foresight enough to supply his bees with the needed stores prior to the honey flow, has harvested a fine crop of clover honey. Those who did not have little to show for a very fine flow.

The clovers, both alsike and white, were abundant the first time in four years. As money was scarce, many beekeepers thought that they could not afford to supply their bees with stores early in the season, which, in most colonies, was sorely needed. This is mighty poor economy any year, but more so when the honey flow had been poor for three years. To quote Dr. Miller, "when it is raining honey, I want my dish right side up."

We have had some very dry weather since the honey flow closed, but during the past 48 hours (August 2) we have had several fine rains that will help the honey flow from heartsease materially. In fact, we look for a good flow from this source as the intensely wet May caused lots of it to get beyond the shovels of the corn plows. This, with a reasonable amount of moisture, usually means a honey flow.

The Short Honey Flow from Alsike and White Clover Caught Many Colonies Unprepared to Take Advantage of It.

We do not look for any great amount of honey from Iowa this season, notwithstanding the abundance of clover early. Many parts have suffered from drouth, and, of course, in these parts the honey flow was cut down. The bees as a rule were not up to normal when the flow started, owing to shortage of stores and cold weather when fruit and dandelion were in bloom.

Not much honey is on the market as yet. For what there is, beekeepers are getting from 10 to 12 cents per section. One beekeeper with 80 colonies told me that he thought he would be able to get 10 cents per section for his entire crop. What the price of extracted honey will be, I can not say as I have none this year to sell, and have seen none of the new crop on the market. Just why I am unable to say. Probably the merchants are not keen to stock honey this season this early. This is not the usual case as in other years they have been anxious for new honey. It is not because they have old honey on hand, at least in any amount.

While conditions generally are looking better, it behooves beekeepers to push sales. The business does not come to your door, at least not much of it, and my experience has been that the fellow who goes after the business, gets it if there is any to get.—W. S. Pangburn, Center Junction, Iowa.

MICHIGAN.—The picture has changed during the past month of drouth, and instead of the big crop that seemed certain, southern Michigan has about a fifth of a crop with no honey in some sections, and lower central Michigan has about one half a crop. Central Michigan and the "Thumb" section have, in some sections, a normal crop, but even there the condition is spotted. The quality is excellent. Comb honey is not too plentiful.

The Largest Crowd of Beekeepers Ever Assembled in Michigan Displayed Healthy Optimism.

Probably the largest crowd of beekeepers ever assembled in Michigan was in attendance at Oscar Schmidt's place for the summer meeting. President Schmidt went to great pains to have everything in readiness for the meeting, but the big crowd of over 400 overflowed the premises. It was mighty stimulating to notice the heavily charged air of optimism which permeated the meeting. Things seemed to be very much "on the up" and close attention was given to the entire program.

The most significant thing about the meeting is the response to the work of American Honey Institute. Both the president, E. R. Root, and the secretary, Mrs. Malitta Fischer Jensen, were on the program and gave a picture of what the Institute could do if it had better backing from the beekeepers. Michigan's reply was a subscription from those in attendance at the meeting of approximately $525.00, of which $122.00 was paid in in cash on the spot.

The registration book showed that bees owned by the 135 beekeepers who signed up, total 21,754 colonies. This reflects the trend of beekeeping in Michigan today, and shows that the business of honey production in this state is no longer a "baby."

In fact, there are over 19,000 colonies in one county.

Now that the drouth is broken by rains, we may get some fall honey. For the last month most hives have scarcely held their own.—R. H. Kelty, East Lansing, Michigan.

ONTARIO.—With Jupiter Pluvius away on a vacation for six weeks or more, and Old Sol doing full time duty seven days of the week during this period, much of Ontario is "dry" in the dictionary meaning of the word, even if it is not strictly so in the more modern meaning. With long periods of intense heat during the long spell of weather, with little or no rainfall, depending upon localities, the land is parched and vegetation shriveled up over much of the province. Locally, farmers assure me that all seeds sown last spring are dead, but a few miles north of our home where they had a few showers that we did not get, freshly-sown sweet clover and alfalfa appear to be all right.

The Honey Crop Is Shorter Than Estimates Made Last Month.

When I wrote the notes for the August issue of this journal, sweet clover in some of our apiary locations was looking as well as usual, and, judging by crops received there during the last few years, I fully expected like results this year. In that spirit, I foolishly stated that two yards would likely run about 200 pounds per colony. But sweet clover does not yield much honey in our locality when the land is dry and temperatures run over the ninety mark as they did all too often in July. To make matters worse, some early buckwheat yielded enough to color a lot of honey. In past years when sweet clover yielded freely, the bees never looked at early buckwheat. So, at the final reckoning, we find our crop much lighter than anticipated a month ago, all going to prove more conclusively that much of my knowledge about bees and crops is of a negative nature.

It was my privilege and pleasure to attend a joint meeting of the Ontario and New York State beekeepers held recently near Queenston, Ontario. While pleased, of course, to meet so many of the fraternity domiciled on this side of the line, it was even more of a pleasure to come in contact again with so many of our cousins from New York State, as well as a few others from other parts of the Union.

New York State beekeepers almost without exception reported a failure or near failure in the honey crop this year, but none with whom I came in touch seemed to be very much down-hearted about the results for the season. Among the large number present from Ontario, reports varied from a very light crop to a bumper one in a very few cases, by far the greatest number reporting a medium yield. Prospects appear to be very poor for a crop from buckwheat, and in many localities there will be none whatever owing to long drouth and hot weather. In so far as our own apiaries are concerned, possibly half of our bees will get little if any buckwheat, while the other half have fair prospects if rain comes soon. If no buckwheat comes in, it will mean quite a loss as many depend upon that source of nectar for winter stores in our locality.

The death of Prof. Millen came as a great shock to a host of beekeepers here in Ontario as well as in other places, as he was in the prime of life to all appearances. Personally, I had known him intimately for a long time. While we had at times quite sharp differences of opinion on certain matters, yet this difference was never accompanied with rancor. I believe I can truthfully say that our friendship was closer at the time of his death than at any other time. It is a tribute to any man to be able to say that honest differences of opinion never embittered personal friendship, and I can sincerely pass on that tribute to our departed friend. My sincere sympathy together with that of a host of other friends is extended to Mrs. Millen and the daughters in their sudden and sad bereavement.

Honey appears to be selling more freely than usual and we have already sold at our door about three thousand pounds. In a wholesale way, sales have been made at about a cent a pound over last year's price, and the general sentiment seems to support the idea of still higher prices. Time will tell whether this actually happens. While a reasonable advance might be expected in view of the general raise in commodity prices, one can not look for a great improvement to come all at once. The buying power of the general public is still low, and that is a prime factor in deciding prices.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

An Efficient Solar Wax Extractor

To make a solar wax extractor about twice as efficient, set the extractor on some kind of wheel. An old wagon wheel with two or three feet of the axle is the handiest for the farmer. Set the axle in the ground so the wheel just clears the ground. Have it handy so some one can turn it towards the sun several times a day. I think it should have a clock arrangement that would keep it facing the sun at all times.—G. E. Philbrook, Lakeside, California.

Lettering in Comb Honey

I believe a method of lettering comb honey has been described in which the letters were uncapped in the sealed comb, the honey extracted from the uncapped portion, then the comb given back to the bees which were fed a darker honey than that in the comb. I get very fine lettering in sealed combs simply by scratching the letters in the sealed comb, then spacing them farther from their neighbor than they were before so the bees will draw the cells out further where the letters are to be. I take the combs out before the bees cap this drawn-out portion.—Iver C. Andersen, Lake Benton, Minnesota.

How to Find a Black Queen

Here is a method for finding a black queen. Whether the combs are movable or not makes little difference. Take off the cover, put on an empty hive body, then put the cover back on. Blow a few puffs of smoke in at the entrance and beat on the hive with two hammers or sticks for two or three minutes. The bees and queen will crawl up into the empty hive body. Many will cluster on the underside of the cover. When most of them are up, set the hive body off gently while you place a queen excluder on the hive. Now set the hive body back on the excluder, give the cover a few licks with the hammer or stick, remove the cover and smoke the bees down through the excluder. The queen will generally be found crawling around on the excluder. If not, repeat the operation.—B. F. Hardison, Grantsboro, North Carolina.

Introducing Queen Without Disturbance

The inner cover should be provided with a second hole similar to the one for the bee-escape, except that the dimensions should be 3"x4". This would admit any ordinary introducing cage. Proceed in the usual manner by removing the old queen and other necessary preparation, then insert the cage, screen side down, in the hole. When the proper time has elapsed one may see if the queen has been liberated without any disturbance of the colony.—Joseph McCarty, Zanesville, Ohio.

A Short Cut in Requeening

I'm going to try grafting queen cells about the first of August, the queens to be mated in baby nuclei, 20 of which I have. Now here's an idea, new so far as I know: I am going to try taking these laying queens from the nuclei during a cold snap in November and simply place them between the top-bars on the cluster without removing the old queens. I believe both queens will be allowed to live until brood rearing in the spring, when the best one, which in most cases should be the young one, will be allowed to survive.—J. F. Norgren, Junius, South Dakota.

Pacific Coast Field Station

We have a few beekeepers narrow minded enough to suggest doing away with the Pacific Coast Bee Culture Field Station as an economy move. This was not done. The expenses will be cut but the scientific personnel will be held intact. At this time Messrs. Sechrist and Todd are busy on the proof of the first economic manuscript, that on marketing honey in California. We understand that the second bulletin on beekeeping in California is also in press. Mr. Vansell has returned from Nevada. He seems to have definitely determined that what had been called the bee disease is not a disease, but is the effect of poison combined with difficulties of management in areas where beekeeping is not easy. Poisonous plants are hard to control. Anyway we are glad the work will go on even if it must be slowed up some to cut expenses.—Cary W. Hartman, Oakland, California.

A Two-Colony Hive-Stand

I have used various kinds of hive-stands and have worked in yards that have employed almost every kind that could be devised by the ingenuity of man, but I have yet to find anything that gives the all-around service of the one I am now using, and that at a moderate price. The stand, accommodating two colonies, consists merely of two 2"x4"'s and one 1"x 4", both of cheap lumber. The 1"x4" is nailed to a 2"x4", making a 3"x4", which is used under the rear of the hives. The other is used under the front of the hives giving the necessary slope to shed water. I cut the material about five feet long so the hives may be placed 12" to 15" apart and still leave the ends of the stand projecting beyond the hives six to eight inches. These projecting ends, as well as the portion of the stand between the hives, make an ideal place to set from one to a half dozen combs while working the colonies. Simply set the combs on the projecting ends resting on the bottom-bar and lean against the hive. This keeps them out of the dirt and grass and crushes the minimum number of bees.—J. Franz Norgren, Junius, South Dakota.

Heather Honey in Sections

Although our climate enables us rarely to harvest much honey, the heather honey crop some years makes a favorable exception. Last year we succeeded in getting a fine crop of full sections of comb honey. In order to accomplish this, we placed on our hives two brood-chambers and a section-case. Some of these sections which were partly filled by the bees on the white clover were filled completely on heather. It is a great pity, however, that the public does not appreciate sufficiently the delicious heather honey, for most heather honey is used by bakers. Germany is a great consumer of heather honey, but at present they charge such high duties that we do not get a chance to supply our heather honey to our neighbors.—Hans Matthes, Breukelen, Holland.

Sections that were partly filled during the white clover honey flow were completely filled from heather after the bees were moved to the heath.

One of Hans Matthes apiaries located on the heath for the heather honey flow. Each colony has two brood-chambers.

Food Department

Malitta D. Fischer

Honey Salesmen

The possibilities of increasing honey sales are practically unlimited. Salesmen full of enthusiasm for honey and a personal appreciation of its quality will help us realize these possibilities more than any other group or individual.

What makes any salesman a good one? It matters not whether he is a food salesman, an auto salesman, a furniture salesman, or a specialty salesman. Some of you will say enthusiasm and others may say determination. I should answer *faith* because one can not have faith in that which he is trying to sell without being enthusiastic about it, one can not be determined to sell unless he has faith in that which he is determined about.

Some may say that the honey industry needs a few *high-powered salesmen* to put the honey program over. I would immediately disagree with them on that. Personally, I do not believe in high-powered salesmanship; the results are too spasmodic—many sales for a short period and no repeat business. It is not the first sale that counts in merchandizing a product like honey, but rather the confidence that first sale builds so that future sales can be made. High-powered salesmen bring only temporary business. What the honey industry needs is permanent business. At the present time we can look around and see how many high-powered salesman have worked themselves out of a job. Business confidence is not based on that type of salesmanship whether it is the honey business or some other business.

A good salesman helps his customer. To help his customer he must guide him wisely and satisfactorily in his buying. Your customer is always worth more than your sale. If your customer realizes that he can depend on your honesty and intelligence, he will respect you and constantly come to you for the product you are selling. You are rendering a real service to the entire beekeeping industry if you build up your honey business on that basis. In other words, you can not be of service to the honey industry if you are not of service to the consumer.

Good Salesmanship Puts Service to Consumer Uppermost

Too many honey salesmen in the past have not been conscientious in serving the consumer. They have considered honey sales only from the angle of service to the beekeeper with the result that they were harming the industry more by their misrepresentations than they were doing it good. You can't forget your customer after you have sold her honey. You must continue to be interested in that customer to ascertain why she is either continuing to buy honey or not buying honey.

Perhaps no one has been discussed or "cussed" more than the salesman. I really sympathize with the salesman because I do think he has a hard job. Especially does he have a difficult job now. The American public has been called upon and called upon until it is just naturally antagonistic toward the salesman. Everybody is telling the salesman what to do, and he gets so much advice that he is advised to death. But please remember that when the following suggestions are given they are given with the deepest of sympathy for you who will sell honey; and they are given with the sincere belief that they will help you not only sell honey, but that they will also help you to build your business up so that it will be permanent.

Good Salesman Believes in His Product

No person can sell honey successfully unless he personally believes *it is the best product of its type.* I believe it is in spite of the hundreds of arguments I have had opposing that belief. People who did not believe in honey five years ago—I mean believe it had possibilities for an-all-year-round food—now do and are using it every month of the year. Magazines, which four years ago indicated that they could use honey copy in the winter issues of their magazines but not in the summer issues because honey was a winter food only, used more honey recipes in their June, July and August numbers this year than they ever did in their November, December and January issues in years past.

"Acording to thy faith, so be it unto you," means exactly what it says when applied to selling honey. You must believe in honey 100 per cent if you are to sell it suc-

cessfully. You can't just think of it as an unusual spread or topping to be served whenever you have hot biscuits, yet that's exactly what you will think if you yourself have used it only in that way. *Use honey yourself first*, read everything you can get on honey, enjoy honey in your daily food services, and then try to sell it. You'll sell it, then.

I don't know of any industry that turns as many untrained people loose to sell a product as the honey interests do. And I don't know how we are going to remedy the situation since there are so many thousands of little producers. The larger producers will gradually come to recognize the value of training men to sell honey whether it be from house to house, to the crowds at fairs, or to the retailer. But the smaller producers will continue to come and go and sell as best they can, perhaps by cutting prices and perhaps just givng it away. I'd rather have them give it away than ruin the markets by price cutting. We don't want to charge an unreasonable price for honey for that will never bring us a permanent market. But we do want to make an honorable living off our bees, don't we? The only way we can do it is to have prices on a basis of a serviceable and honest exchange as compared with other products, and send out *trained* men and women to sell it.

To make sales you must *want* sales. You must want sales more than you want any other material thing in the world. That want of yours will awaken a mental emotion called enthusiasm. That enthusiasm comes from within. It is essential to be clean; a clean collar and a daily shave help. Besides, they are excellent habits. To keep up a front, you don't have to be expensively dressed. *Emotion and feeling* sell, not eye-appeal. If you are enthusiastic and honest in what you say about your honey, your prospect feels that too. It isn't just what he sees in the honey you show him, but it is something the prospect feels that makes him feel what you have will be helpful. Enthusiasm is a good name for this inside quality; radiate it everywhere you go. Enthusiasm has been known to work miracles in the life of some ordinary men. Honey enthusiasm is bound to work miracles in our beekeeping industry. Let us consider now the standard items any sales promotion manager outlines when planning to push a product. First, there's quality, then follow the package, displays, nutritional properties, sales, appeals, and last but not least, profits.

Honey a Quality Product

Honey isn't an ordinary product. It's the perfect sweet, filling a long known need for a sugar with flavor. It has history, and that is always convincing to the consumer. It's a distinctive blend, a blend that wasn't hit upon just by snapping your fingers. Hundreds, yes, thousands and thousands of bees spent months in their laboratories blending and working and working and blending. There's not another sweet on the market that can measure up to it in tastiness and flavor. All of us believe that, yet we stand by and let food companies talk and write and elaborate upon the testing and blending that takes place to perfect the product they are selling without even saying a word to our customers about what wonderful chemists, engineers, laboratory technicians and skilled laborers we have to make up *our* product, *honey*.

The Package

I hope it's one that you just can't help being enthusiastic about. It must be a *convenient* one if it is going to bring in repeat orders. If it's honey in glass you are selling, it should be of the squat type. What is it the consumer buys more than anything else? It's *convenience*. We buy automobiles because it's more convenient to ride in them than walk. We buy electric refrigerators because they are more convenient than the type that requires ice. We buy certain types of stoves for cooking because they are more convenient. Squat jars of honey are more convenient for serving and handling honey than the tall slender jar. Ask any consumer if she buys honey according to color and you'll find that in many cases she does not know a thing about color. She's interested in flavor. Ask a producer why he bottles in the tall jar instead of a squat. He'll say, "My honey looks dark in the squat jar and it doesn't sell so well when it looks dark." When you asked him, if he ever tried to sell it in squat jars and whether he asked the consumer about it, he'll tell you "no." In other words, the deduction that honey will not sell in squat jars due to a darkened appearance of the honey is based on *producer analysis* and not an any reaction from the consumer. To whom are you selling honey, to the producer or the consumer? To whom should you go for such deductions?

If the honey is in tin, the 2½-pound and 5-pound sizes are the best for the average home. Where the members of a cer-

tain home are honey conscious and use considerable honey, the 10-pound pail and 60-pound can are satisfactory because, if the honey should become solid (we all know how difficult it is to get solid honey out of a 60-pound can) these people won't object because they are already too enthusiastic to let a little thing like that worry them.

The *package* must be lively and suggestive. It must be dignified and yet have plenty of punch. If it's suggestive it will contain recipes for the use of honey. The all-around-the-can label will be much more dignified than the half size label. With the all-around-the-can type you'll have ample room for four good seasonal suggestions for using honey. Colors that harmonize will make the label lively. Avoid too many illustrations—they are apt to cheapen the general appearance.

Displays of Honey

The display you make up will depend entirely upon the occasion. If you are going to sell house-to-house, make up some sort of an easily carried case (preferably small). I like best having an exhibit arranged in the truck so that the homemaker can step out to the curb and look it over. The Kerr Glass Company has a huge glass jar (the kind they sell for canning) on the back of its roadsters and trucks. Shelves are arranged inside the large jar and on each shelf are cemented jars filled with vegetables, fruits, relishes, etc., all home canned. The salesmen are not interested in selling the food, but in attracting the attention of the homemaker to the jar they sell for canning. I have often thought how splendid it would be if we had honey displays that showed up as effectively as do these canned fruits and vegetables. It's something to think about and eventually, maybe there'll be honey displays on trucks going about our large cities.

Write to the Institute for suggestions for grocery, bakery and other displays.

Nutritional Properties of Honey

These are sometimes referred to as health properties. Let us be right up-to-date and refer to these properties as nutritional ones. Medical leaders now tell us that no one food is a health food more than some other food. It takes the *proper combination of foods* to maintain health, so, when we speak of foods from this angle, we should refer to their nutritional value. Just where, in the nutritional requirements of our bodies, does honey enter the program? There are two sheets in Honey Helpings of American Honey Institute that give you all the good talking points you need on this subject. If you are interested, write for them. They will be sent free. You should always be prepared to discuss nutritional properties of honey when selling it.

To make your sale, keep reminding your customer of the endless number of delightful, delicious, and distinctive combinations she can make with honey. If possible, have a sample of something made with honey. Baked honey fudge lends itself well for house-to-house selling. It is baked in a paper cup and no hand needs touch the combination. The customer always appreciates sanitary handling of samples. The recipe for this service can be one on your label or you can have it on 3" x 5" cards to give out. If you are selling during the fruit cake season, have a honey fruit cake wrapped in cellophane for the customer to thumb and another portion of fruit cake which she can smell of to get the marvelous aroma one gets from a good honey fruit cake. If in a store, you can have a larger assortment of foods prepared with honey on display. Suggested uses and samples of finished products always stimulate sales.

Combination Offers as Appeals

Combination offers are always appealing. Perhaps a jar of honey, a jar of quick marmalade and a rubber dish scraper (so handy when using honey) would make a good club offer and one that would have special appeal. You can make the quick marmalade—it is simply apricots and honey. Or, it might be a honey hunk (I think honey hunks are excellent for house-to-house selling) a 2½-pound can of honey and a honey drizzler (that indispensable honey container or server so handy for dispensing honey) in a club offer. That would appeal to the homemaker. For National Honey Week you can plan all sorts of club offers to interest your grocer in putting on a special honey sales promotion program for that week and your house-to-house men can use some of them too. Start thinking about these special "appeals" now.

Profits Necessary in Building Up Sales

I can't tell you what your profits should be but there should be an honest and fair scale. There must be a profit for the producer, the bottler, the retailer, and if it's a house-to-house salesman, his profit must

(Continued on page page 570.)

Gleaned by Asking

Geo. S. Demuth

Young Queens Lost in Mating

Question.—I have had considerable trouble during the past two years losing queens during their mating flight, even after marking the hives with stakes and painting them different colors. Is there any way to be sure of safe return of these young queens?—Charles J. Davis, New Hampshire.

Answer.—Many young queens are caught by birds during their mating flight. The kingbird is one of the chief offenders in this. There is no way known to insure the safe return of young queens from their mating flight, but by killing the birds that may be catching them and by locating the hives further apart, thus breaking up the uniformity of the apiary, much can be done to prevent the loss of young queens.

Placing Excluder Below Food-Chamber

Question.—Should the excluder be placed below the food-chamber or on top of it with the supers above?—Iver C. Andersen, Minnesota.

Answer.—Much depends upon the character of the honey flow. During a long honey flow which tapers off toward the close, as is usually the case with sweet clover, the excluder may be left above the food-chamber since the long honey flow tapering off toward the close results in the bees crowding the queen out of the upper chamber and filling it with honey. On the other hand, in some localities the honey flow ceases abruptly when the food-chamber may contain so much brood that there is little room for honey if the excluder is left above it. In such localities it is better to place the food-chamber above the excluder early enough in the season to have it filled with honey before the honey flow closes. This is the only way the food-chamber will be well filled in such localities unless there is a dependable fall honey flow.

Feeding to Stimulate Fall Brood Rearing

Question.—When should I feed in southern Pennsylvania to stimulate brood rearing in order to get my colonies strong in young bees for winter?—L. H. Lindemuth, Pennsylvania.

Answer.—Most of the bees which survive the winter are those which are reared during the latter part of August, September and early October in your locality. Therefore, any feeding to simulate fall brood rearing should be done in August and September in your locality. As a rule, it is not necessary to feed the bees in late summer and fall to stimulate brood rearing, provided the colony is well supplied with honey and has a young queen. Lacking either of these factors often results in colonies going into winter quarters weak in young bees, although they may appear strong because of the large number of old bees.

Protecting Hives from Hot Sun

Question.—I see many pictures of apiaries out in the open without any protection from the hot sun. Also in the July issue of Gleanings in Bee Culture there is a picture of a man pretending to cook a meal on his metal-top cover. Have I the wrong idea in thinking that the hives should be protected from the hot afternoon sun?—M. F. Bond, Missouri.

Answer.—The hives should have some protection from the sun during the warmest part of the season. Most beekeepers like to have the hives out in the open in order that they may have the benefit of the sunshine during the winter and spring. It is easier and pleasanter to handle the bees out in the open than in a shed or a shady place. As a rule, bees located in the shade are inclined to be much crosser than those located in the open. But the hives should be protected in some way from the direct rays of the sun during the heat of the day in midsummer. The double-hive cover answers this purpose to a considerable extent. When using the single-hive cover, most beekeepers provide shade boards so arranged that there is an air space between the hive cover and the board. By placing it on the hive in such a manner that it will project over the south side of the hive, the exposed side of the supers will be protected during the middle of the day. In the South, apiaries are often located among trees, the hives being arranged so that they will be in the sun during the morning and evening, but shaded during the middle of the day. In the Southwest, most apiaries are located under sheds which provide shade during the middle of the day, but permit the sun to shine on the hives during the morning and evening.

Food-Chambers on Hives During Winter

Question.—I have shallow extracting supers filled with honey set aside for spring feeding. Would it be better to put these supers on the hives in the fall before packing the bees for winter, or wait until spring? If put on the hives in the fall, should the excluders be used?—Nelson A. McClary, Michigan.

Answer.—Except where winters are very severe, or where bees are wintered in the cellar, most beekeepers prefer having the food-chambers on the hives throughout the year. Where winters are extremely severe, the filled food-chambers may be stored in a heated room or in a

warm dry cellar, then put on the hives in the spring. The same is true when wintering in the cellar since it is more convenient to handle single-story hives in cellar wintering than two-story hives. Also, theoretically at least, bees should winter somewhat better in a small chamber than in a large one, but if they winter practically as well with the food-chamber in place there are several advantages in leaving it on the hive throughout the year. During late summer and fall it helps by stimulating late brood rearing in localities not having a fall honey flow. During the winter its presence insures an abundance of food even if there should happen to be none in the brood-chamber. In the spring it is in place for the protection of the colony against running short of stores, thus making it unnecessary to examine the colonies until the arrival of settled warm weather. In your part of the state (northern Michigan) it may be well to experiment by preparing colonies in both ways to see if there is any difference in the way they winter. In central Michigan and farther south, the food-chamber is usually left on the hive during the winter.

Best Way to Kill Bees

Question.—I want to dispose of some of my colonies. What is the best way to kill them and where can I get the stuff with which to do it?—C. A. Johnson, Minnesota.

Answer.—Calcium cyanide is the material now usually used for killing bees, if it becomes necessary to do so. To kill a colony with this material, place about a tablespoonful on a piece of cardboard or heavy paper and quickly slide it through the entrance. It is not necessary to close the entrance when a sufficient amount of material is used. Calcium cyanide can usually be obtained from the larger drug-stores under the trade name Cyanogas. It must be handled carefully, since, when exposed to the air, it gives off deadly fumes. Bees can also be killed by placing the hive, without bottom, over burning sulphur in a shallow pit in the ground. The sulphur is burned by placing it on live coals. Gasoline can also be used for killing colonies of bees. By closing the entrance, then pouring in one or two cupfuls of the gasoline from the top and closing the hive tight, the bees are quickly killed. The Cyanogas method appears to be a more humane way.

Cleaning Wet Extracting Combs

Question.—In previous years, when there was no foulbrood, I set out the wet extracting combs and let the bees clean them up. This year, I killed a few colonies where foulbrood was discovered. I am afraid to set out the wet extracting combs as I used to for fear the disease might be spread if any more of the colonies happen to have a slightly diseased condition. If I put the extracting supers back on the hives from which they were taken, the bees will put the honey back in a few cells instead of carrying it down. What should I do with them?—F. E. Poister, Kansas.

Answer.—Sometimes the bees can be induced to carry all of the honey down by placing an empty super and an inner cover with the escape hole open between the brood-chamber and the supers of wet extracting combs. If this doesn't work, you could sort out the combs in which a little of the honey has been stored and run them through the extractor again, then put them back into the same super, if you think it necessary to keep all of the combs on the same hive they were on during the summer. Another way would be to number the supers as you take them off, giving each the number of the colony which filled it, then make a careful examination of all the colonies for disease. If none is found, there would be practically no danger in having the combs cleaned by setting them out as you have previously practiced. If a diseased colony is found, the super it filled could be identified by its number, and its combs destroyed. Even if you should overlook a colony having only a few cells of American foulbrood, the chance of transmitting disease through the extracting combs that were filled above an excluder is exceedingly remote.

Destroying Wax-Moth Larvae in Super Comb

Question.—I have a number of empty supers which I have not needed thus far this season, and which have become infested with the wax-moth larvae. What is the best way to clean up these supers?—Melvin A. Anderson, South Dakota.

Answer.—The safest thing to do with these combs is to put them on the hives of strong colonies so the bees can take care of them. They can be placed above the supers already on the hives without interfering with the storing of the honey crop, and the bees will take care of them. A strong colony can protect five or six supers of extracting combs. If this plan is not feasible, you can kill the wax-moth larvae before they spin their cocoons by fumigating them with carbon bilsulphide. To do this, pile the supers in a tight pile, place an empty super on top, and in the empty super place a shallow pan with one ounce of carbon bisulphide for three supers, two ounces for six supers, or three ounces for nine supers, then put on a tight cover to retain the fumes.

Talks to Beginners

Geo. S. Demuth

As a rule, bees need but little attention during September except in those localities in which there is a good honey flow from fall flowers, yet in many respects it is a critical month since the fate of the colonies during the winter is determined to a large extent this month. The bees which survive the winter and thus bridge over the broodless period, are those reared during late August, September and early October in the North, and during September and October in the South. If no young bees were reared during this critical brood-rearing period, the colonies would be compelled to go into winter with bees too old to survive until brood rearing could be safely carried on again in late winter and spring.

Reduction in Amount of Brood

As the season advances, the bees rear less brood, the amount tapering off toward the close until there are sometimes only a few small patches of brood left when the queen finally quits laying. Beginners are often surprised at the small amount of brood in the fall as compared with the amount in June and July. If the bees are gathering a considerable amount of nectar, they may have six or eight frames fairly well filled with brood this month, but if nectar is scarce and they are compelled to draw on their stores to keep up brood rearing, the amount is usually cut down to the equivalent of not more than three or four frames fairly well filled. Even this amount of brood is sufficient to supply enough young bees for winter if these young bees are not called upon to do a lot of work in searching for nectar during a slow honey flow late in the fall. The amount of brood that is normal at this season, therefore, depends to a large extent on whether there is a honey flow or a dearth of nectar.

In like manner the number of bees in the stronger colonies decreases as the older bees die off and are not replaced by heavy brood rearing. In fact, colonies that were weak in July, may rear as much brood, provided they are well supplied with honey, in September as the stronger colonies. Thus the tendency is for the colonies to become more nearly uniform in strength as winter approaches, especially if there is a slow honey flow resulting in the old bees wearing themselves out during the fall.

Colonies that have only a few pounds of honey on hand can not rear enough brood this month to make a good winter cluster unless they are able to gather enough from fall flowers to sustain brood rearing. The remedy is to feed them sugar syrup or give combs of honey. Colonies that are weak at this time covering only a few combs, can not rear enough brood to make a good winter colony. Beginners often make too much increase when the bees are prosperous in May or June, resulting in a lot of weak colonies that will perish during the winter unless united. Rapid increase during the summer is often followed by rapid decrease during the winter. Colonies that are queenless or have old or otherwise worthless queens usually do not rear enough brood this month for safe wintering. The remedy is, of course, to requeen, or if weak, to unite such a colony with another that has a good queen but which may be lacking in stores or bees.

Sometimes the bees gather a considerable amount of nectar from fall flowers, but not enough to cause them to store well in the supers. Under such conditions, they are inclined to crowd the queen down to a small space by surrounding the brood nest with newly-gathered honey. This is especially true in case of weak colonies or colonies of medium strength. However, this condition is rare and usually quite temporary in the greater portion of the country. Later in the month or early in October, just before brood rearing ceases, it is a good thing to have the brood-chamber so well filled with honey that there is not much room for the queen to lay.

Management in the Drouth Area

In those localities in which the bees have been compelled to live from hand to mouth on account of the severe drouth, some colonies at least will have to be fed if they are to amount to anything next spring. Colonies that have no store of honey now should be given at least a 10-pound pail of sugar syrup or one or two combs of honey immediately in order to enable them to rear enough brood to make a winter colony. In some cases it may be

necessary to feed two or three 10-pound pails of sugar syrup to keep up brood rearing, then in October feed enough for their winter supply.

Colonies that are too weak to take care of two or three combs of brood usually should be united. This may be done simply by taking off the cover of one of the hives, spreading a sheet of newspaper having a few pinholes punched through it, over the frames, then setting the other hive without bottom directly on top of the newspaper. The holes in the paper give the bees a start in gnawing it away, and the two colonies unite so gradually that there is usually no fighting. Several days later, it is well to re-arrange the combs, placing those that are heaviest with honey in the upper story and the nearly empty combs in the lower story. Any rearrangement of this kind should be done soon before the bees begin to arrange their affairs for winter.

Honey Plants That Bloom in the Fall

In some localities bees will fill their supers this month from fall flowers, in other localites they may gather only enough for a living, and in still others there may be an almost complete dearth of nectar during the rest of the season. In the sweet clover region, the bees should still be able to store some honey from sweet clover, especially where the plants have been revived by recent rains. Where buckwheat is grown extensively, bees usually continue to work on this plant during the early part of the month. Where goldenrod and other fall flowers are plentiful, especially in the northern portion of the Atlantic Coastal Plain, bees may be able to fill their supers with a rich gold-colored honey from these fall flowers. In portions of the corn belt heartsease (often called smartweed) often supplies enough nectar for surplus honey, especially where summer rains have been plentiful. In some localites, the asters supply large quantites of nectar late this month and in October. Beginners who are not acquainted with the honey resources of their localities during September, will do well to watch the work of the bees, for, in some cases, they will need more super room.

Management of Supers During Fall Honey Flow

In those favored localites where the bees store surplus honey from fall flowers, the management of the supers is somewhat different from that of early honey flows. As a rule, the honey flow is slow compared with honey flows earlier in the season, and in most cases the honey is amber or dark in color. It is therefore not advisable, as a rule, to try to produce comb honey during a fall honey flow. Exceptions to this are in those localities having a heavy fall honey flow and a local demand for comb honey from fall flowers, as is the case in some localities. Otherwise, it is better to take any fall surplus honey in the extracted form.

A satisfactory method of handling a fall honey flow is to give each colony a super of extracting combs. If these are not at hand, and frames of foundation must be given, there is danger that the honey flow may not be strong enough to cause the bees to build combs readily. If the honey flow is strong and the bees indicate that they are anxious to build comb by elongating the cells in the upper portion of the brood combs with white wax, it is usually safe to give a super of frames of foundation, but if the honey flow is not strong enough for this, it is better not to put on a full set of frames of foundation even though the queen may be crowded with new honey. In such cases, it is sometimes advisable to take out a frame of honey at each side of the brood nest and place a frame of foundation next to the brood on each side. The frames of honey can be saved to give back to the bees later.

Those who have had an extracting super filled with early honey to be left with each colony as a food-chamber, may find it necessary to give an additional extracting super for the fall honey flow. Since the early-gathered honey, such as that from clover, is usually better for winter stores, especially in the North, than fall honey, some place the empty super between the brood-chamber and the food-chamber to catch the fall honey and to induce the bees to put most of it into the supers instead of the brood-chamber so that the bees will winter on the early-gathered honey.

Sometimes during a slow honey flow, the combs in the middle of the super can be taken out, the honey extracted, the partly-filled combs shoved over to the middle of the supers, and the empty ones from the extractor placed at the sides. In every case, plenty of honey (40 to 50 pounds) should be left for the bees.

BEEKEEPING IN GUATEMALA.

Upper—One of the apiaries of Nortropic Honey Company near Guarda Viejo, Guatemala. Middle—Another apiary and extracting house belonging to the same company. Lower—A close-up of one of the apiaries of Nortropic Honey Company.

Sell and Buy Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Copy should be in the 15th of month preceding.

HONEY FOR SALE

We do not guarantee the reliability of honey sellers, although we require strict references from them.

FINE HONEY, packed to suit you. Ray C. Wilcox, Odessa, N. Y.

NEW crop clover honey in new sixties. D. R. Townsend, Northstar, Mich.

CHOICE Michigan clover honey, new 60's. David Running, Filion, Mich.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

AMBER honey in barrels. Sample, 6c. Peter W. Sowinski, Fort Pierce, Florida.

CLOVER, basswood, buckwheat and mixed extracted and comb. F. W. Lesser, Fayetteville, N. Y.

NEW YORK clover honey, white and amber, 5-8c. Buckwheat in 60's. C. J. Baldridge, Kendaia, N. Y.

TUPELO honey, will not granulate. Shipped in any quantity. Anthony Bros.' Honey Co., Apalachicola, Fla.

OHIO'S finest extracted white clover honey. Prices on request Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

WHITE clover and amber honey in new 60-lb. tins. Also fancy and No. 1 comb. Harry T. Gable, Romulus, N. Y.

WATER white comb and extracted clover honey. Superb quality. Priced right. Howard Grimble, Holcomb, N. Y.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

NOW on hand, new crop clover honey, case to carload, in new 60-lb. cans and cases, or in any way you wish put up. Sample free. W. S. Earls & Son, New Canton, Ill.

HONEY—We sell the best. Combs in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. A. I. Root Co. of Chicago, 224 West Huron St., Chicago, Ill.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

STOLLER'S excellent quality clover honey, comb, cut comb and extracted. White stock, unexcelled. Write Stoller Apiaries, Latty, Ohio.

NEW clover honey, in new 60-lb. cans. Ray C. Hiltner, Continental, Ohio.

MICHIGAN white extracted honey in 60's. M. H. Hunt & Son, Lansing, Mich.

CHOICE comb and extracted honey. Prices on request. Roy C. Stoller, Grover Hill, O.

OAKVALE APIARIES—New clover comb honey. Forrest Dygert, Hammond, New York.

FANCY white and No. 1 comb honey in 4¼x1⅞ sections. Adolph Moesch, Bonduel, Wis.

NEW crop clover, amber or buckwheat honey; comb or extracted. C. B. Howard, Geneva, N. Y.

FOR SALE—New white clover honey in 60-lb. cans, 7c per lb. Jos. Hoehn & Sons, Ottoville, Ohio.

HONEY—New crop clover, amber and buckwheat, both comb and extracted. F. J. Smith, Castalia, Ohio.

NEW YORK clover honey, in new 60-lb. cans, case lots, 6c; ton lots, 5¾c. H. B. Gable, Romulus, N. Y.

CHOICE Michigan clover extracted honey. Also cut comb and honey hunks. W. S. Wiggins, Muir, Michigan.

1933 crop white clover honey in sixties. Write for prices. Sample, 10c. Meyer Toom, Knoxville, Iowa, Route 4.

DELICIOUS clover extracted honey, case or car lot. Amber, 4½c; white, 5c. John Burghardt, Grand Island, Nebr.

WHITE CLOVER honey, extracted, comb and chunk. Sample, 1 lb., 15c; no stamps. F. W. Summerfield, Grand Rapids, Ohio.

HOWDY'S HONEY—White extracted and baker's grade. Offers wanted for carlots or less. Howard Potter, Jr., Ithaca, Mich.

FOR SALE—Light amber and buckwheat in new 60-lb. cans; 5-lb. pails; also buckwheat comb. E. L. Lane, Trumansburg, N. Y.

HONEY FOR SALE—It will be to your advantage to communicate with me before buying your next lot. Thos. D. Sherfick, Shoals, Ind.

NEW crop white clover extracted honey in new 60-lb. cans. State how much you need. Leonard S. Griggs, 711 Avon St., Flint, Mich.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Asso., Denver, Colo.

FOR SALE—Well ripened heavy clover honey, $3.00 a can. Large quantity special discount. M. Noack, 3942 Lexington St., Chicago, Ill.

SEVEN DOLLARS gets two perfect sixties of finest honey from clovers to be had. None better, none cheaper. Sample, 20c. Joe C. Weaver & Sons, Rt. 2, Harlan, Iowa.

WE will continue to sell our best Michigan clover extracted honey during September, at 6c per pound on track. It may be higher next month. New cans. E. D. Townsend & Sons, Northstar, Michigan.

FOR SALE—Thirty tons Michigan's finest clover honey. Sample, 10c. Ralph Blackman, Portland, Mich.

WHITE clover extracted, 7½c. Ten case lots, 7c. Fancy white comb, $3.25, in eight-case carriers. A. J. Wilson, Hammond, N. Y.

RASPBERRY HONEY—In 60-lb. cans, for $6.00 a can. In 10-lb. cans by mail, postpaid up to and including fourth zone, for $2.00 a can. Sample by mail, 20c. Elmer Hutchinson & Son, Lake City, Mich.

WE offer comb and extracted clover, amber and buckwheat honey and new maple syrup, sugar and cream and honey maple table syrups in many different sized packages of glass, tin and paper boxes to suit your pocketbook and trade now and in the future at no raise in prices. Write Griswold Honey Co., Madison, Ohio, U. S. A.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—Small lots of off grade or 1932 crop comb honey. Box 155, Chippewa Lake, O.

WANTED—Individual size comb honey. State quantity and price. Russell Dyke, Auburn, Mass.

WANTED—Honey. White clover, light amber in 60-lb. cans. Roscoe F. Wixson, Dundee, New York.

WANTED—Comb and extracted honey. Mail sample, state quantity and price. Sherfick Farms, Shoals, Ind.

WANTED—Comb and extracted honey; state price and condition. Earl M. Alexander, New Paris, Ohio.

WANTED—White clover extracted honey. New cans only. Cash on arrival. Clover-Blossom Honey Co., Columbus, Ohio.

CARLOAD or less comb and extracted honey. Mail samples and delivered price. C. W. Aeppler Company, Oconomowoc, Wisconsin.

WANTED—A car or less quantity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

WANTED—Honey and beeswax. Beekeepers will find it to their advantage to communicate with us. Please send samples, state quantity available and prices. California Honey Company, Hamilton & Company, Agent, 108 W. Sixth Street, Los Angeles, California.

FOR SALE

SAVE queens. Safin cages now 15c; ten for $1. Allen Latham, Norwichtown, Conn.

800—24-section size used comb boxes with and without glass fronts; fifty dozen pint jars. Landau, Box 4452, Brookland, D. C.

PATENTED wire-bound beehive insulators. Best for winter protection. Write Standard Bee Specialty Co., Box 392-A, Eau Claire, Wis.

A STRAW beehive displayed with honey at roadside stand will help sell your honey. For particulars, write G. Korn, Berrien Springs, Mich.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

FOR SALE—Jacketed honey heater; 60-lb. capacity. Jacob S. Weigel, 143 Stewart Ave., Mansfield, Ohio.

HONEY TANKS—250 gallons, 5 barrels. To trade for honey. W. C. Stamps, 706 Beech St., Chattanooga, Tennessee.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

ELECTRICAL honeycomb uncapping knife, 10-inch thermostatic heat control, 180° F. lowest, 205° F. highest heat, cost 2c a day to operate. Price, $11.50. When ordering state your voltage, 110-volt or 120-volt. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.

BEE SUPPLY SPECIALTIES

METAL EYELETS in your frames will stop the WIRE SAG which is responsible for most SAGGED COMBS. METAL EYELETS, per 1000, 60c. Handy tool for inserting eyelets, 25c. Superior Honey Co., Ogden, Utah.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

QUEENS, while they last, 25c each, any number. J. M. Cutts & Sons, Rt. 1, Montgomery, Ala.

QUEENS, 25c, 5 for $1.00. Highest grade, fine three-banded Italians. G. H. Merrill, Greenville, S. C.

INSURE BEES for winter, with high grade three-band Italian queens at a low price. Untested, 30c each, any number. D. W. Howell, Shellman, Georgia.

CAUCASIAN queens, September and October delivery. Untested, one, 50c; ten, $3.75. Safe arrival and satisfaction. Lewis & Tillery Bee Co., Rt. 6, Greenville, Ala.

GOLDEN Italian queens, balance of season, 35c each. Safe arrival and satisfaction guaranteed. Write for prices on June packages. E. F. Day, Honoraville, Ala.

FOR SALE—One to seventy colonies in two-story standard ten-frame hives, with young Italian queens. Inspection certificate furnished. E. S. Robinson, Mayville, N. Y.

FOR SALE—150 colonies bees, guaranteed free from disease, and 31 acres, buildings, in one of Michigan's finest beekeeping locations. Ill health. Mrs. Anna Goodwin, R. D. No. 1, Lyons, Mich.

QUEENS, QUEENS—Hollopeter's high producing, gentle, beautiful Italians. Untested, 2, $1.00; 12, $4.50. Tested, $1.00. Now at their best during buckwheat and goldenrod bloom. J. B. Hollopeter, Rockton, Pa.

QUEENS, QUEENS—Pure bred Italians, 40c each; tested, 80c each. They are sure to please you. Quality, service, complete satisfaction assured. Let us supply your needs. Honey Bee Apiaries, Sandwich, Ill.

FOR SALE—For cash, 270 colonies, in double eight-frame hives, in good condition, located in excellent sweet clover and alfalfa district. Equipment for producing extracted honey. Guaranteed no disease. Mrs. Harvey Whiteacre, Saratoga, Wyo.

ITALIAN queens, 30c each. We will take wax at 15c per pound delivered in trade for queens. Cloverland Apiaries, Hamburg, La.

GOLDEN Italian queens that produce good workers, and gentle to handle. Satisfaction guaranteed. Select tested, $1.50; tested, $1.00. Untested, well worth 75c, now for 50c. D. T. Gaster, Randleman, R. F. D. 2, N. C.

EXTRA yellow Italian queens, health certificate and satisfaction insured. Over 15 years a breeder. Prices, 1 to 11, each, 60c; 12 to 23, 50c; 24 to 36, 40c; over 36, 35c. Tested, $1.15 each. Hazel V. Bonkemeyer, Randleman, Rt. 2, N. C.

GOOD QUEENS for summer and fall requeening. Gentle, productive, three-banded Italians. The kind you like to work with. Select young laying queens, 35c each; three, $1.00; ten or more, 30c each. Prompt shipment. Safe arrival guaranteed. Accredited by the Alabama Department of Agriculture. H. C. Short, Fitzpatrick, Ala.

CHOICE bright Italian queens that are a pleasure to work with and be proud to own. Requeen with stock that has been bred and selected in the North the past 30 years for good winterers, hustlers, gentleness and fine color. One queen, 75c; $8.00 per doz.; $60.00 per 100. Breeders, $6.00 each. Emil W. Gutekunst, Colden, N. Y.

MISCELLANEOUS

GENERAL JOB printing done by A. Matson, 21513 Donaldson, Dearborn, Mich.

WANTED—Small farm with bees. Trading 2 city lots and half crop payments. W. B. Kirby, 1019 Washington Boul., Oak Park, Ill.

BEEKEEPERS—Improve sources of nectar by planting vitex trees, or seed. Two-year-old trees, 40c; one-year-old trees, 25c. New tested seed at $1.00 per ounce. All prepaid. Joe Stallsmith, Galena, Kansas.

WINCHESTER model 53, cal. 25-20, fine condition; Lyman peep sight, case; cost $35.00; trade for four-frame reversing basket extractor, honey tanks, or wired foundation. M. Frydenlund, Cashton, Wis.

ANNUAL report American Honey Producers' League, including 14 papers and complete discussion of 1932 convention for $1.00 membership included. Address V. G. Milum, Vivarium Building, Champaign, Illinois.

BUTCHER, BAKER AND CANDLESTICK MAKER

(Continued from page 542.)

Former President Dillon, in his address, cautioned the beekeepers not to expect a too rapid rise in the price of honey; that if prices went up too much, consumers would go without. He strongly urged that producers should cut their costs and thus be prepared to meet low prices.

I should not close without saying that this territory is well covered with beekeepers, and there would be no chance for an outsider to get in without buying some beekeeper out. Beekeepers throughout this section recognize each others' rights and do not encroach on each other.

Later—The last Government Market Report shows that honey prices are advancing on some grades.

4 Queens for $1.00

OUR QUEENS ARE BETTER THAN EVER

Through August, September, and October will offer Select Untested three-banded Italian queens at 25c each, any amount.

Our queens are guaranteed in every way to be good and are especially guaranteed against supersedure for one season.

The Crowville Apiaries
Winnsboro, Rt. 1, La.

CITRONELLE Queens & Bees

Requeen with the finest 3-banded genuine Italians.

1 to 50	30c each
50 to 100	25c each
100 over	20c each

Prepaid to you.

Prompt shipments.

Citronelle Bee Co., Inc.
Citronelle, Alabama

Moore's Strain

Leather Colored Italian Queens
Superior Stock

50c Each

World-wide reputation for honey-gathering, hardiness, gentleness, etc., since 1879. Safe arrival and satisfaction guaranteed. Circular free.

J. P. Moore

MORGAN KENTUCKY

Queens, 25c Each

BY RETURN MAIL

Guaranteed to be A No. 1 Italian queens, equal to any you can buy elsewhere for twice the price. Pure mating and safe arrival guaranteed.

N. NORMAN & CO., LAPINE, ALABAMA

Wanted Shipments of Old Combs for rendering into Wax.

WRITE FOR FULL PARTICULARS

THE FRED. W. MUTH CO.

PEARL & WALNUT CINCINNATI, O.

BRIGHT GOLDEN ITALIANS

We are offering those large, uniform, prolific, quality queens, properly raised and carefully caged.

They produce large, gentle, yellow bees that are such excellent honey makers and are so pleasing to handle. Every owner admires and praises them.

1 queen, 75c; 2 to 9, 50c; 10 and over, 45c.

STEVENSON'S APIARIES, Westwego, La.

Queens Queens

Hollopeter's high producing Italians now at their best during the buckwheat and goldenrod bloom. Choice untested queen, 1, 50c; 2, $1.00; 12, $4.50. Tested, $1.00. Address

JASON B. HOLLOPETER, Queenbreeder

WHITE PINE BEE FARMS, Rockton, Pa.

(With Gleanings from 1911)

TOLD BY THE JAY

(Continued from page 543.)

want lots of printing on it to hide it from the keen eye of the housewife, and you can sell her—once. This year in many sections, the comb honey is so poor that many will not want more than an inch right in the center to show. One man tells me that he will have to wrap his up in tinfoil before he can sell it.

Yes, we want everything around our hang-out standard from socks and hives to false teeth.

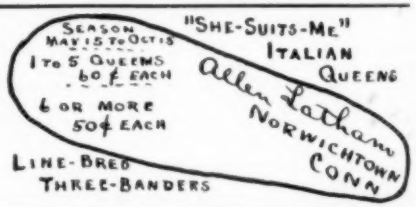
FOOD DEPARTMENT

(Continued from page 561.)

provide a living. All beekeepers who want to make beekeeping a real business might start thinking about this problem of profits and come to the annual convention next February to participate in an open forum on this vital subject. I do hope we can make some decision that will benefit all who are vitally concerned with the progress of our industry.

Anything which appeals to a large section of the public can always be sold in a crowd with less effort per sale than in-

(Continued on page 571.)



Mott's Northern-bred Italian Queens

PRACTICALLY NON-SWARMING

75c each; 25 or more, 70c each; 50 or more, 65c each. Guaranteed purely mated, or free queen, means tested in the end. Ask for list with testimonials. Satisfaction guaranteed.

E. E. MOTT & SON, Glenwood, Mich., U. S. A.

Imperial Italian Bees and Queens

As good as the best; better than the rest. Correctly reared from the best of stock. Recommended by Mr. M. J. Deyell of Medina, Ohio. Buy now before prices advance further. Tested, 75c each; untested, 50c each. Write for prices on other articles. Queens traded for beeswax or honey.

THE H. E. COFFEY APIARIES

Whitman Coffey, Mgr. Whitsett, Texas.

Wanted Fancy White Comb Honey

Not Wrapped but in Glass-Front Wood Cases

State best price Frt. Paid Cincinnati, O.

THE FRED. W. MUTH CO.

FOOD DEPARTMENT

(Continued from page 570)

dividually. Honey always has had that special crowd appeal. I hope many of you sold honey at your county and state fair concessions. Unique specialties, such as honey lemonade, honey ice cream, honey popcorn, honey sundaes and the like, are good sellers, and help materially to interest folks in honey. Exhibits, show cards, samples and posters which can be seen at a distance are essential for crowd selling. It is helpful to dress the part for crowd selling. Uniforms of white or tan or light grays are always attractive in food booths.

One's mental attitude largely determines the success of his selling ability. First you must believe in honey and then you must believe that you can sell it. Never let the thought enter your mind that it can not be sold. Make it impossible for anyone to discourage you. Read everything on honey you can get hold of before you attempt to sell it. Be sure you believe what you are going to say. Also be sure you are honest in your belief. "Out of the abundance of the heart the mouth speaketh," applies with full force when selling honey.

Caucasians

have all the good traits of Italians, plus extra gentleness, less swarming, more prolific, longer tongues, less robbing and more dependable workers. Wintered here out-of-doors, and bred in a climate like their native land—severe winters, cold windy springs—thus insuring their good qualities. Breeders from Prov. Terek, Caucasus.

Carniolans

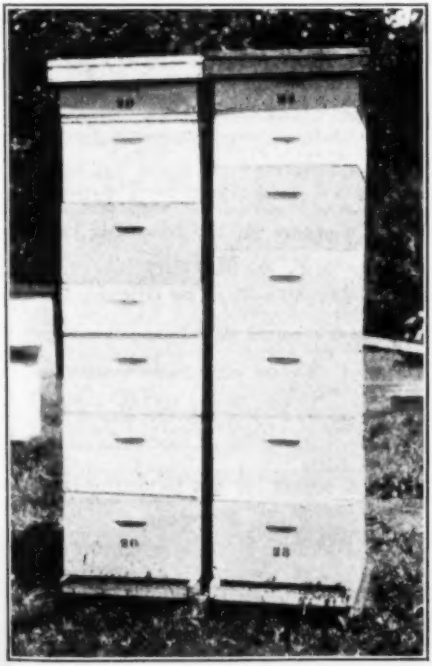
Prolific at all times, very gentle, best of winterers, build up rapidly during the changeable weather of spring, build beautifully white combs, and most excellent workers. One customer reports an average of 435 lbs. per colony, extracted, spring count, for the whole yard of over 50 colonies. Have supplied many State Agricultural Colleges and Experiment Stations in U. S. and Canada with them. My own and Jan Strgar imported strain.

PRICES BOTH RACES:

1 untested queen	50c
6 untested queens	$2.75
12 untested queens	5.00
Tested queens, each	1.00

Both these races give better results in northern and western sections of our country where the flow comes early. Use some Caucasians or Carniolans among your Italians, both will improve your Italians in gentleness and honey gathering. Put in some of these fine queens during September and October to begin the season of 1934. Replace all old and failing queens and those cross ugly colonies with gentle bees.

ALBERT G. HANN
GLEN GARDNER NEW JERSEY



Increase Your Profits

by requeening with our large, yellow gentle bees. Joseph M. Barr, the well known beekeeper of West Allis, Wis., sends me this photo and writes, "These two colonies with queens of your stock made me very happy." And why not? You will be happy, too, if you use our stock for you want big crops from bees that are gentle—bees that you can with pride show to your visitors. I have worked for hours with our mating hives, taking out queens using no **veil or smoke** without getting a single sting! Queens introduced any time before November will be at their best next season. We can ship promptly. Write for our free book, "About Bees," which is a brief treatise on beekeeping.

Prices: Untested, $1.00. Five, $4.75; ten, $9.00; one hundred, $75.00.

Tested, $2.00. Breeders, $7.50.

Jay Smith

Route Three Vincennes, Indiana

Now Is the Time to Buy

and Save Money

Prices on a large number of items have already gone up. Here are some bargains on slightly shop-worn bee supplies. Prices are good only as long as stocks last. All goods are for cash and F. O. B. shipping point.

Send orders for the following to

A. I. Root Co. of Indianapolis
121 N. Alabama St., Indianapolis, Ind.

42—Alexander feeders, 20c each.
5—Alexander feeders, Buckeye loose bottom hive, 20c each.
4—Division board feeders, nailed, 20c each.
300—Jumbo brood frames, $3.36 per 100.
4 KD—22552—Plain section supers, 4x5x 1⅜, the lot, $4.00.
4 KD—22532—Plain Section supers, 4¼x 4¼x1½, the lot, $3.20.
These goods are all worth the money.

Send orders for the following to

A. I. Root Co. of Philadelphia
10 Vine St., Philadelphia, Pa.

3—489, Root's wax presses, single, $14.50 each.
20 pairs medium drill bee gloves, without fingers, 40c each.
3—G4090, Storage tank, 80-gallon, honey gate attached, $11.50 each.
7—215, Sets of 5 wooden letters for honey sign, nailed only, 80c each.
1—"How to Keep Bees," 75c each.
10—Packed rims, shallow depth, nailed and painted, $1.50 each.
10—Packed rims, full depth, nailed and painted, $2.00 each.
2—Swarm catchers, old style, without poles, 75c each.
1500—Plain comb-honey cartons for 4x5x 1⅜, 50c hundred.
2—254, Veil, of mosquito bar entirely, 25c each.
500—Old-style window cartons, 4¼x1½, $3.20.
25—Chaff division boards, 15c each.
800—Old-style small queen mailing cages, 20c for ten, $1.50 per hundred.
40—Long-distance queen-mailing cages, 25c for ten, $2.00 per hundred.

A. I. Root Co. of Norfolk
New Address
55 Commerce St.

Send orders for the following to

The A. I. Root Company of Iowa
Council Bluffs, Iowa

245—8-fr. 7-wire and wood queen excluders, each, 42c.
43—8-fr. 3-wire and wood queen excluders, each, 39c.
200—8-fr. Hive Bodies, without frames, per 5, $2.15.
300—8-fr. Beeway Section Supers, empty, per 5, $1.43.
300—10-fr. Beeway Section Super, empty, per 5, $1.48.
200—8-fr. Wood Hive Covers, per 5, $1.70.
100—10-fr. Wood Hive Covers, per 5, $1.95
3000—Shallow Extracting Frames, per 100, $2.50.
5—Woodman Section Fixers, each, 90c.
2—4-fr. Buckeye Power Extractors, 9⅛" pockets, $59.50.
1—4-fr. Buckeye Power Extractors,, 12½" pockets, each, $79.50.

Send orders for the following to

F. A. Martiny
2822 Magazine St., New Orleans, La.

400—Root standard eight-frame hive-bodies, $60.00 per 100.
50—Root standard eight-frame shallow supers, $20.00.
F. O. B. New Orleans, La.

Send orders for the following to

F. E. Burgess
642 Elm Rd., N. E., Warren, Ohio

60—Single-tier display cases for 24 beeway sections, $3.00 per 10.
30—Single-tier display cases for 24 4 x 5 sections, $3.00 per 10.

Keeping Faith

We have kept faith with our customers through the years that will linger long in the memories of most of us. In the face of lower and lower prices we have kept the quality of our bees and queens up to the highest standard, of which we are proud.

The "New Deal" is on, and we are looking confidently toward the future. Play your part next year by systematic requeening this fall. Higher prices must be expected from now on, even for honey.

We are and will be rearing the choicest queens for a long time yet with which to fill your orders. It is customary at this season of the year to receive many orders for hundred lots, and in many instances it is advantageous to both customer and us to split shipments, facilitating handling at both ends of the line.

Prices: 1, 35c; 3, $1.00; 12, $3.60; 100, $27.50.

JENSEN'S APIARIES
CRAWFORD, MISSISSIPPI

Better-Bred Italian Queens, Any Quantity, 25c Each

Special introductory offer, 10 queens for $2.35
Select Breeders ..... $2.00 each

Queens will be much higher next season. Why not requeen while you can get good quality queens at bargain prices.

CALVERT APIARIES, CALVERT, ALABAMA

Leininger's Strain of Italians

We have been breeding queens for 50 years, and have developed a wonderful strain of Italian bees, that are equal to the very best that money can buy, at the following prices:

Untested, 50c each; tested, $1.00 each; breeders, $10.00 each.

Address FRED LEININGER & SON, DELPHOS, OHIO.

STOLLER'S

THRIFTY NORTHERN BRED ITALIAN QUEENS

Bred for honey production, this strain is reared and tested in a great clover belt, assuring you of the very best in queens.

Untested, 50c each.
Tested, $1.00.

THE STOLLER APIARIES
LATTY, OHIO

KNIGHT'S

Dependable Queens

are now

30c Each

NO CHARGE FOR CLIPPING

LINE-BRED THREE-BANDED LEATHER-COLORED ITALIANS. ACCREDITED AND CERTIFIED BY ALABAMA DEPARTMENT OF AGRICULTURE.

They clean up European foul-brood, and are the best winterers as well as the best honey-gatherers.

JASPER KNIGHT, Hayneville, Ala.

MILLER'S

Old Reliable
3-banded Italians

They Satisfy

20 Years a Breeder

There is a big difference in QUEENS.
BALANCE OF SEASON.....30c EACH

JOHN G. MILLER
723 C STREET, CORPUS CHRISTI, TEXAS.

Queens, 25c Each

BY RETURN MAIL

High-grade dependable 3-banded Italian queens. None better. Tested queens, 50c each. Send me your order. I rear queens to please and gain your patronage. Try them. Satisfaction guaranteed.

JOHN A. NORMAN, RAMER, ALABAMA

Wanted Amber Extracted Honey

Send Samples and best price Frt. Paid to Cincinnati, O.

THE FRED. W. MUTH CO.

WANTED!

300 Dollar-a-Year Men

Three hundred beekeepers who will send one dollar each to the American Honey Institute on or before September 20th can make it possible for the very effective work on honey publicity to continue.

All other sources of income have become exhausted. Regular supporting members, consisting of the bee supply manufacturers, container manufacturers, honey packers, shippers of package bees and queens, and other regular contributors, have paid their share—we can not ask them to pay more.

Hundreds of prominent men and women in the food industry are now talking and writing about honey. Five years ago they were not even interested in honey; there was no National Honey Week; no coast-to-coast honey broadcasts —only about one per cent of what is being done now through the stimulus of the American Honey Institute, to get people to eat more honey.

Has the beekeeper the time, patience, or money to advertise honey? He has not! The Institute is doing this job for him—taking the load off his shoulders. The A. H. I. has given him a "lift"—will he come through, with 299 others, by September 20th, and give the Institute the "lift" it needs now to keep alive?

One bee supply manufacturer has spent over $15,000 to make the Institute possible; is one dollar each from 300 beekeepers asking too much? Please mail money order to

AMERICAN HONEY INSTITUTE

417 North Few Street, Madison, Wisconsin.

Queens, 25c Each

For one or one hundred. Palmetto Queens are superior in quality and sell at regular queen prices. A trial order will convince you. Orders booked in advance at no extra charge. No exchange on Canadian orders.

C. G. ELLISON, BELTON, S. C.

We are Cash Buyers of Honey and Beeswax
Submit samples and best prices, freight prepaid Cincinnati
We also furnish cans and cases.
The Fred. W. Muth Co. PEARL & WALNUT CINCINNATI, O.

York's Bees & Queens

ARE BRED FOR BUSINESS

Return mail service on queens in small or large quantites.

Untested Italian queens, 75c each; 3 for $2.00; 10 for $6.50, or $50.00 per 100.

Package bees in season, write us.

Lewis Beeware and Dadant's Foundation at Catalog Prices.

York Bee Co., Jesup, Ga.
The Universal Apiaries

HONEY CONTAINERS

Friction-top Pails

Five-gallon Cans

Glassware

Window Cartons

Cellophane Wrappers

Paper Shipping Cases for Comb Honey

"A" Grade Tin Paste

Send for price list.

M. H. HUNT & SON
LANSING, MICHIGAN

QUEENS 25c Ea. "Diamond" QUEENS Ea. 25c

BRIGHT ITALIANS

Requeen in September for safe wintering and as a swarm control measure for 1934. Our "Diamond" queens will give you satisfaction. Scientifically reared for PRODUCTIVENESS and GENTLENESS. Immediate shipment. Health certificates furnished. Service and quality guaranteed.

If package bees are wanted, please write for price.

GARON BEE COMPANY, DONALDSONVILLE, LA.

FREE--Quality Italian Queens--FREE

With each order for four or more of our quality queens we will give one queen free.

QUALITY QUEENS, 25c, ANY NUMBER

Beekeepers have used more than 360,000 of our queens in 23 years. You try them. We replace or refund your money for queens that are not good ones. Late requeening pays well, less swarming and a bigger honey crop the following season.

Merrill Bee Company - - Buckatunna, Miss.
(MISSISSIPPI'S OLDEST SHIPPERS)

New England and Eastern Beekeepers

Take Notice

To reduce our stocks of cans at our warehouse at Jersey City, New Jersey, we quote tin containers as follows:

TIN CONTAINERS

2½-lb. cans.....$2.90 per 100
5-lb. pails ..... 4.90 per lb.
10-lb. pails..... 7.25 per 100
60-lb. cans, two in a wooden case .....63c per case

AEPPLER HONEY JARS F. O. B. FACTORY, EASTERN INDIANA

The lowest prices in history. Here is a chance to save some money on glass and also on freight.

Send for twenty-page complete catalog on Honey Packaging Equipment and Supplies!

C. W. Aeppler Company

OCONOMOWOC, WISCONSIN

"YES"

Accredited and Certified Queens

By State Department of Agriculture

My prices are lower than ever before, so do not take the risk with old queens. If you will requeen your colonies with my high grade Accredited Queens, you will have made the most important step in securing a bumper honey crop. To know them, try them out; they give results that will amaze you.

Select Untested Queens
25 cents each

Pure mating, safe arrival and entire satisfaction guaranteed.

Hayneville Apiary Co.

W. E. Harrell, Prop. Hayneville, Ala.

Mountain Gray Caucasian Queens

Accredited and certified by Alabama Department of Agriculture. The strain of Caucasians we offer you is the result of many years of selective breeding from stock we originally imported from Russia. The character and volume of business being sent us from year to year is evidence they are pleasing. We invite you to join this band of beekeepers that use Caucasians. Untested queens, any number, 50c each; tested, each, $1.50; select tested, $2.50 each. Nuclei bees for show purposes. Write for prices. Safe delivery and satisfaction guaranteed.

BOLLING BEE COMPANY, BOLLING, ALABAMA

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